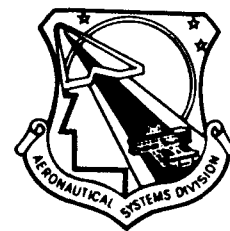


AD-A240 147



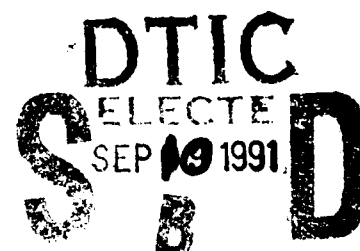
ASD-TR-87-5032
VOLUME 2

AIRCRAFT LANDING DYNAMIC ANALYSIS
VOLUME 2 COMPUTER PROGRAM

John W. Lincoln
Structures Division
Directorate of Flight Systems Engineering

November 1988

Approved for Public Release; Distribution Unlimited



DEPUTY FOR ENGINEERING
AERONAUTICAL SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433-6503

91-09905

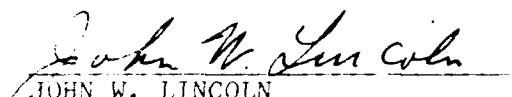



NOTICE

When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely Government-related procurement, the United States Government incurs no responsibility or any obligation whatsoever. The fact that the Government may have formulated or in any way supplied the said drawings, specifications, or other data, is not to be regarded by implication, or otherwise in any manner construed, as licensing the holder, or any other person or corporation; or as conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

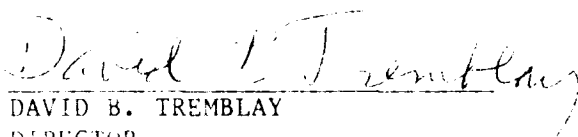
This report has been reviewed by the Office of Public Affairs (ASD/PA) and is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations.

This technical report has been reviewed and is approved for publication.


JOHN W. LINCOLN
TECHNICAL EXPERT
STRUCTURES DIVISION
DIRECTORATE OF FLIGHT SYSTEMS
ENGINEERING


CLOVIS L. PETRIN, JR.
CHIEF, STRUCTURES DIVISION
DIRECTORATE OF FLIGHT SYSTEMS
ENGINEERING

FOR THE COMMANDER


DAVID B. TREMBLAY
DIRECTOR
FLIGHT SYSTEMS ENGINEERING

If your address has changed, if you wish to be removed from our mailing list, or if the addressee is no longer employed by your organization please notify ASD/ENFS, Wright-Patterson AFB, OH 45433-6503 to help us maintain a current mailing list.

Copies of this report should not be returned unless it is required by security considerations, contractual obligations, or notice on a specific document.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION Unclassified			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION / AVAILABILITY OF REPORT		
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE					
4. PERFORMING ORGANIZATION REPORT NUMBER(S) ASD-TR-5032, Vol 2			5. MONITORING ORGANIZATION REPORT NUMBER(S)		
6a. NAME OF PERFORMING ORGANIZATION Deputy for Engineering, ASD, AFSC		6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION		
6c. ADDRESS (City, State, and ZIP Code) Wright-Patterson Air Force Base, Ohio 45433-6503			7b. ADDRESS (City, State, and ZIP Code)		
8a. NAME OF FUNDING / SPONSORING ORGANIZATION		8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER		
8c. ADDRESS (City, State, and ZIP Code)			10. SOURCE OF FUNDING NUMBERS		
			PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) AIRCRAFT LANDING DYNAMIC ANALYSIS VOLUME 2 COMPUTER PROGRAM					
12. PERSONAL AUTHOR(S) LINCOLN, JOHN W.					
13a. TYPE OF REPORT Final		13b. TIME COVERED FROM <u>N/A</u> TO <u> </u>		14. DATE OF REPORT (Year, Month, Day) 1988, November 4	
15. PAGE COUNT 184					
16. SUPPLEMENTARY NOTATION					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number) arrested landing analysis landing dynamics aircraft landing loads dynamic response		
FIELD	GROUP	SUB-GROUP			
19. ABSTRACT (Continue on reverse if necessary and identify by block number) This report is Volume 2 of a two volume report. The first volume provides the derivation of the equations of motions and the second volume documents the computer program. In the second volume the equations of motion are coded for the general case of a flexible aircraft with rigid body motion permitted in six degrees of freedom. The shock strut force equations are derived based on the assumption that a gas-fluid shock strut is used. The hydraulic fluid is assumed to be compressible in the shock strut. The arresting forces are derived for a cable arrestment system. The equations permit landings with unsymmetrical arresting forces. The equations were coded in FORTRAN 77. A sample input deck and run are provided.					
20. DISTRIBUTION / AVAILABILITY OF ABSTRACT <input type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION Unclassified		
22a. NAME OF RESPONSIBLE INDIVIDUAL John W. Lincoln			22b. TELEPHONE (Include Area Code) (513) 255-6879		22c. OFFICE SYMBOL ASD/ENFS

FOREWORD

This report was prepared by John W. Lincoln from Structures Division of the Directorate of Flight Systems Engineering, Aeronautical Systems Division, Wright-Patterson Air Force Base Ohio. Its purpose is to provide an analytical method for the accurate and rapid calculation of the loads on an aircraft during landing. The report is written in two volumes. In the first volume the equations of motion are derived and in the second volume the computer program that was developed from these equations of motion is documented.



Accession For	
NTIS GRA&I	<input checked="checked" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special

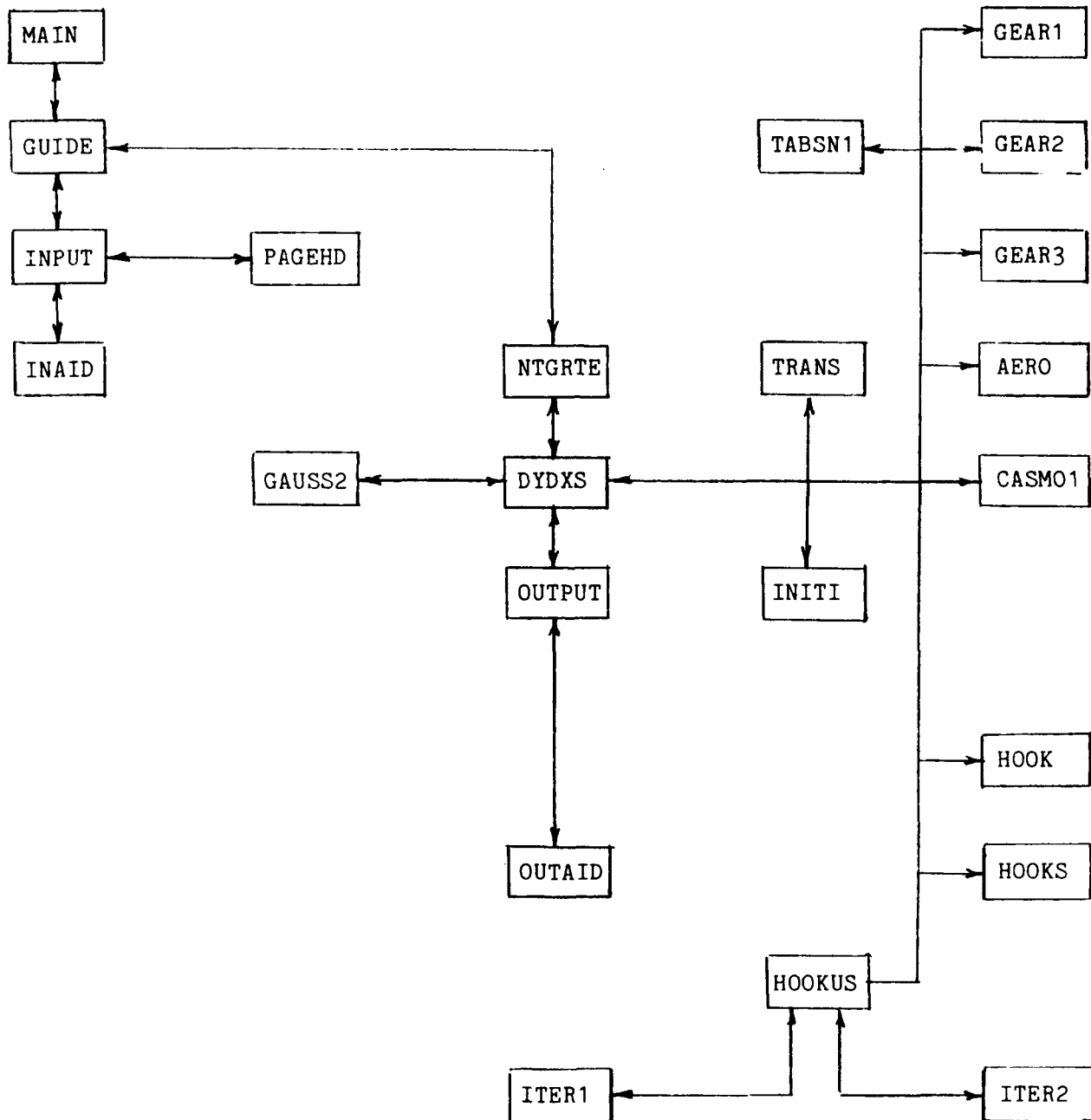
A-1

TABLE OF CONTENTS

SECTION	PAGE
COMPUTER FLOW DIAGRAM AND PROGRAM	1
Program Description	2
INPUT DATA	5
TABLE 1. Input Data	6
Input Data Description	12
TABLE 2. Output Data	16
EQUIVALENCE TABLES	20
TABLE 3. NTEGER Equivalences	21
TABLE 4. P Equivalences	22
TABLE 5. Y Equivalences	28
TABLE 6. DYDX Equivalences	30
TABLE 7. Interpolation Functions	32
SUMMARY OF EQUATIONS	37
Equations of Motion	38
Initial Conditions	45
Arresting Hook Force Equations	48
Ground Force Equations	56
Aerodynamic Force Equations	59
Shock Strut Force Equations	61
APPENDIX A - SOURCE DECK LISTING	65
APPENDIX B - DATA DECK LISTING	127
APPENDIX C - SAMPLE COMPUTER RUN	135

COMPUTER FLOW DIAGRAM AND PROGRAM

The computer routine LAND was coded in ANSI Standard FORTRAN 77 with the main program and the subroutines arranged as follows:



Program Description

MAIN - Main program - sets NZERO to 0 and transfers control to GUIDE.

GUIDE - Subroutine - zeroes input and output numbers before data is read for first computer run, sets DYDX(1) = 1, calls INPUT and calls NTGRTE.

INPUT - Subroutine - reads in all input numbers and calls INAIID.

INAIID - Subroutine - writes input data and establishes integers for control of OUTPUT.

PAGEHD - Subroutine - writes page heading for computer run identification and page number.

NTGRTE - Subroutine - performs the four point Runge-Kutta integration of differential equations and calls DYDXS and OUTPUT.

DYDXS - Subroutine - establishes the equations of motion as equivalent first order differential equations. This program calls GEAR1, GEAR2, GEAR3, AERO, CASMO1, and the arresting hook force routines HOOK, HOOKS and HOOKUS.

TRANS - Subroutine - establishes the unit vector transformations for the airframe and the landing gears.

INITI - Subroutine - establishes the initial conditions for the airframe and the landing gears. The program positions the aircraft based on the first

point of the aircraft to contact the ground surface.

GAUSS2 - Subroutine - performs the required matrix inversion to arrange the first order differential equations in DYDXS for numerical integration.

TABSN1 - Subroutine - performs a linear interpolation on the table entries.

GEARa - Subroutine - generates the landing gear forces for the a landing gear.

AERO - Subroutine - computes the aerodynamic forces and moments.

CASMO1 - Subroutine - provides for the entry of equations for the auxiliary or nose gear castoring moment. The LAND program will accommodate the castoring auxiliary gear, but the coded version of CASMO1 assumes that the auxiliary gear is restrained from castoring.

HOOK - Subroutine - computes zero for each of the arresting hook force components.

HOOKS - Subroutine - computes the arresting force components for landings where the arresting forces are symmetrical with respect to the longitudinal axis of the airframe.

HOOKUS - Subroutine - computes the arresting force components for landings where the arresting forces are unsymmetrical with respect to the longitudinal axis of the airframe.

ITER1 - Subroutine - solves nonlinear equation established in HOOKUS.

ITER2 - Subroutine - solves nonlinear equation established in HOOKUS.

The arresting force from the arresting system is computed in HOOKS and HOOKUS. In the existing coding of LAND it is assumed that the shape of this function is dependent on cable runout only. It may be desirable in some cases to have the arresting force depend on aircraft weight as well as runout. To accomodate this option the source deck listing in Appendix A includes the subroutine TABDB2 which performs a straight line interpolation on numbers from a double table look-up. In the event that this option is to be used there are some coding changes required in HOOKS and HOOKUS.

INPUT DATA

Except as noted, input for each computer run is in the units of inches, pounds, seconds and degrees. Wherever possible, the definitions from Volume 1 are used to describe the input terms. For convenience, the points defined in Volume 1 are input as fuselage station, buttline and waterline.

The INPUT subroutine is a generic program for reading input data to a differential equation solving routine. There is considerable flexibility in the method of input of integers and other input numbers including initial conditions and table entries. The program has the capability for input of multiple computer runs. For computer runs beyond the first in an input sequence, only the data that changes needs to be input.

The following input data table provides a correlation of the computer routine terms and the terms defined in Volume 1.

TABLE 1. Input Data

Term	Definition	Units
XN(1)	Fuselage station of the point N	inches
XN(2)	Buttline of the point N	inches
XN(3)	Waterline of the point N	inches
KBULK	K_H	pounds/inch ²
DENOIL	ρ_H	pounds second ² /inch ⁴
XTa(1)	Fuselage station of the point T _a	inches
XTa(2)	Buttline of the point T _a	inches
XTa(3)	Waterline of the point T _a	inches
XAa(1)	Fuselage station of the point A _a	inches
XAa(2)	Buttline of the point A _a	inches
XAa(3)	Waterline of the point A _a	inches
WCa3	$w_{C_a}^3$	inches
ETAa	η_a	degrees
ZETAa	ζ_a	degrees
MUBa	μ_{BU}, μ_{BL}	
KBFa	bearing stiffness	pounds/inch
CBGa	C_{BG_a}	pound second/inch
KBGa	K_{BG_a}	pounds/inch
VOLHOa	$V_{H_a}(0)$	inches ³
AHa	A_{H_a}	inches ²
AAa	A_{A_a}	inches ²

TABLE 1. Input Data (Continued)

Term	Definition	Units
AOa	A_{O_a}	inches ²
CDa	C_{D_a}	
VOLS0a	$V_{H_{S_a}}(0)$	inches ³
AHSa	$A_{H_{S_a}}$	inches ²
ANSEa	$A_{N_{S_a}}(p_{H_{S_a}} > 0)$	inches ²
ANSCa	$A_{N_{S_a}}(p_{H_{S_a}} < 0)$	inches ²
CDSa	$C_{D_{S_a}}$	
RWA	a gear tire rolling radius	inches
MV1Sa	$\frac{V_B s_a}{(M_1)}$	pounds second ² /inch
MV2Sa	$\frac{V_B s_a}{(M_2)}$	pounds second ² /inch
MV3Sa	$\frac{V_B s_a}{(M_3)}$	pounds second ² /inch
M01Sa	$\frac{\Omega_B s_a}{(M_1)}$	pounds second ²
M02Sa	$\frac{\Omega_B s_a}{(M_2)}$	pounds second ²
M03Sa	$\frac{\Omega_B s_a}{(M_3)}$	pounds second ²

TABLE 1. Input Data (Continued)

Term	Definition	Units
ZQGa(1)	Critical damping fraction for first a gear mode	
ZQGa(2)	Critical damping fraction for second a gear mode	
VWa0	v_{wa_0}	inches
APaAVG	Metering pin average area for a gear	inches ²
MURa	μ_{Ra}	
MWa	M_{wa}	pounds second ² /inch
CCOEFa	Tire cornering force coefficient	pounds/degree
XH(1)	Fuselage station of the point H	inches
XH(2)	Buttline of the point H	inches
XH(3)	Waterline of the point H	inches
LHV	l_{HV}	inches
LLP	l_{LP}	inches
PHIHKO	ϕ_{H_0}	degrees
LHP	l_{HP}	inches
KBAR	$K_{BAR}^{(0)}$	inches
DBAR	d_{BAR}	inches
BC	bc	inches
VS	v_S	inches
VHPTC	$v_{HP}(t_C)$	inches
MUC	μ_C	

TABLE 1. Input Data (Continued)

Term	Definition	Units
RUNMAX	RO_M	inches
XTH(1)	Fuselage station of the point TL	inches
XTH(2)	Buttline of the point TL	inches
XTH(3)	Waterline of the point TL	inches
SIGT	$-\sin^{-1}(F_T^3/|\bar{F}_T|)$	degrees
Thrust	$|\bar{F}_T|$	pounds
MV1V1	$\begin{matrix} V_B & V_B \\ (M & 1 & 1) \end{matrix}$	pounds second ² /inch
MOB0c	$\begin{matrix} \Omega_B & \Omega_B \\ (M & b & c) \end{matrix}$	pounds second ² inch
XP(1)	Fuselage station of the point P	inches
XP(2)	Buttline of the point P	inches
XP(3)	Waterline of the point P	inches
VWIND	$V_W \quad (\bar{V}_W = -\bar{I}_1 V_W)$	inches/second
RHO	ρ	pound second ² /inch ⁴
S	S	inches ²
CBAR	$\bar{c} = 1_A^2$	inches
B	$b = 1_A^1$	inches
DELTA	δ_e	degrees
CXAL	$C_X \alpha$	1/degree
CZAL	$C_Z \alpha$	1/degree
CYBT	$C_Y \beta$	1/degree

TABLE 1. Input Data (Continued)

Term	Definition	Units
CXDL	$c_x \delta_e$	1/degree
CZDL	$c_z \delta_e$	1/degree
CMAL	$c_m \alpha$	1/degree
CLBT	$c_l \beta$	1/degree
CNBT	$c_n \beta$	1/degree
CMDL	$c_m \delta_e$	1/degree
CX0	c_{x_0}	
CZ0	c_{z_0}	
CM0	c_{m_0}	
ALFREF	α reference	degrees
DELREF	δ_e reference	degrees
VA	$|\vec{r}'(0) - \vec{v}_w|$	knots
VE	$d'(0)$	knots
VV	$v'(0)$	feet/second
PITCH	$\theta(0)$	degrees
ROLL	$\phi(0)$	degrees
CIQA(b)	$c_q^b; \alpha$	1/degree
CIQ0(b)	$c_{q_0}^b$	

TABLE 1. Input Data (Continued)

Term	Definition	Units
MQBbb	$\ddot{q}_B \ddot{q}_B$ (M_{bb})	pounds second ² /inch
ZQBbb	Critical damping fraction for bth airframe mode	
KQBbb	K_{Bb}	pounds/inch
PBHab	$\Phi_{B_Hb}^a$	

Input Data Description

The first input record contains 14 numbers (NTEGERS) arranged in 15 fields. These 14 entries in order are defined as follows:

- (1) IDENT - Computer run number.
- (2) NPF1 - The number of number sets to be read with 6E10.3 fields.
- (3) NPF2 - The number of numbers to be read with one number per entry.
- (4) 0.
- (5) 0.
- (6) NFIRST - The number of initial conditions to be read into the computer run.
- (7) NT1 - The number of tables for single entry interpolation to be read for the computer run.
- (8) 0.
- (9) NTW1 - The number of input single entry tables that are to be printed in the sequence defined in TABLE 7.
- (10) 0.
- (11) NHOOK = 0 for landing without arresting forces
 = 1 for landing with unsymmetrical arresting forces
 = 2 for landing with symmetrical arresting forces.
- (12) NTSKIP - The number of integration time steps skipped before output data is printed.
- (13) NEQ - The number of equivalent first order differential equations which is equal to $34 + 2 (NGE1 + NGE2 + NGE3 + NBE)$.
- (14) NMORE = 25

The second record contains the following data:

(15) NBE - The number of generalized coordinates used to define the airframe deformation - not to exceed eight.

(16) NGE1 - The number of generalized coordinates used to define the number 1 landing gear deformation - not to exceed 2.

(17) NGE2 - The number of generalized coordinates used to define the number 2 landing gear deformation - not to exceed 2.

(18) NGE3 - The number of generalized coordinates used to define the number 3 landing gear deformation - not to exceed 2.

(19) NSTYP1 = 1 for a type 1 shock strut (see Volume 1) on the number 1 landing gear.

= 2 for a type 2 shock strut on the number 1 landing gear.

(20) NSTYP2 = 1 for a type 1 shock strut on the number 2 landing gear

= 2 for a type 2 shock strut on the number 2 landing gear.

(21) NSTYP3 = 1 for a type 1 shock strut on the number 3 landing gear

= 2 for a type 2 shock strut on the number 3 landing gear.

(22) NCASR1 = 0 if the number 1 landing gear is to be restrained from castoring

= 1 if the number 1 landing gear is allowed to castor.

(23) INIT = 0 if Subroutine INITI is to be called to position the aircraft vertically at the time $t = 0$.

= 1 if Subroutine INITI is not to be called.

(24) 0.

(25) NVEVV = 1 if alternate method for reading initial conditions is used

= 0 if alternate method for reading initial conditions is not used.

The third and fourth records each contain a 72H field for descriptive information on the computer run.

The next records are used to read in number (P) sets in Format 1 and/or Format 2 as required.

For a Format 1 entry, the first record of the entry contains NP11, NP22, 1 in 3I5 fields. The next record contain the numbers P(NP11) to P(NP22) sequentially in 6E10.3 fields. There are NPF1 Format 1 entries per computer run.

For a Format 2 entry, there is one record per entry with I, P(I) in I5 and E15.7 fields. There are NPF2 Format 2 entries per computer run.

If the integer NVEVV is set equal to 1, then by either Format 1 or Format 2 the following numbers are to be input for the initial conditions for the computer run:

P(187) = VA - the airspeed of the aircraft, in knots.

P(188) = VE - the component of the aircraft velocity vector relative to the ground that is parallel to the ground surface in knots.

P(189) = VV - the component of the aircraft velocity vector relative to the ground that is normal to the ground surface, in feet per second.

P(190) = PITCH - the aircraft pitch angle in degrees.

P(191) = ROLL - the aircraft roll angle in degrees.

The next records are used to read in the initial conditions that are not read in through the NVEVV option. Each record contains I, FIRSTY(I) in

I5, E15.7 fields. There are NFIRST entries read in by this format.

The next records contain the single entry tables. For each table the first record contains I, NTB1(I) in I5 and I15 fields where I is the number of the table entered and NTB1(I) is the number of points in the Ith table. The second record contains the abscissas of the points in 6E10.3 fields. The third record contains the ordinates of the points in the Ith table in 6E10.3 fields. There are NT1 single entry tables per computer run.

This completes the input for each computer run.

TABLE 2. Output Data

Term	Definition	Units
T	Time	seconds
VBD1	$v_B^{1,}$	feet/second ²
VB1	v_B^1	feet/second
DD	d'	feet/second
D	d	feet
VBD2	$v_B^{2,}$	feet/second ²
v_B^2	v_B^2	feet/second
SD	s'	feet/second
S	s	feet
VBD3	$v_B^{3,}$	feet/second ²
VB3	v_B^3	feet/second
VD	v'	feet/second
V	v	feet
OMEGBD1	$\Omega_B^{1,}$	radians/second ²
OMEGB1	Ω_B^1	radians/second
PHID	ϕ'	radians/second
PHI	ϕ	degrees
OMEGBD2	$\Omega_B^{2,}$	radians/second ²
OMEGB2	Ω_B^2	radians/second

TABLE 2. Output Data (Continued)

Term	Definition	Units
THETD	θ'	radians/second
THET	θ	degrees
OMEGBD3	Ω_B^3	radians/second ²
OMEGB3	Ω_B^3	radians/second
PSID	ψ'	radians/second
PSI	ψ	degrees
PHa	p_{H_a}	pounds/inch ²
PAa	p_{A_a}	pounds/inch ²
PHSa	$p_{H_{S_a}}$	pounds/inch ²
OMWaD	Ω_{W_a}'	radians/second ²
OMWa	Ω_{W_a}	radians/second
QGaDD1	$q_{G_a}^{1''}$	inches/second ²
QGaD1	$q_{G_a}^{1'}$	inches/second
QGa1	$q_{G_a}^1$	inches
QGaDD2	$q_{G_a}^{2''}$	inches/second ²
QGaD2	$q_{G_a}^{2'}$	inches/second
QGa2	$q_{G_a}^2$	inches
VWa	v_{W_a}	inches

TABLE 2. Output Data (Continued)

Term	Definition	Units
FSa	F_{S_a}	pounds
FGWa1	$\hat{F}_{G_a}^1$	pounds
FGWa2	$\hat{F}_{G_a}^2$	pounds
FGWa3	$\hat{F}_{G_a}^3$	pounds
FAXa1	$F_{G_{A_{a_1}}}$	pounds
FAXa2	$F_{G_{A_{a_2}}}$	pounds
FAXa3	$F_{G_{A_{a_3}}}$	pounds
SaDD	s_a''	inches/second ²
SaD	s_a'	inches/second
Sa	s_a	inches
FFBUa	Upper bearing friction force for a gear	pounds
FFBLa	Lower bearing friction force for a gear	pounds
ALPHA	α	degrees
BETA	β	degrees
VAIR	$|\bar{r}' - \bar{v}_w|$	feet/second
FP1	F_P^1	pounds
FP2	F_P^2	pounds

TABLE 2. Output Data (Continued)

Term	Definition	Units
FP3	F_P^3	pounds
MP1	M_P^1	inch pounds
MP2	M_P^2	inch pounds
MP3	M_P^3	inch pounds
OMG1DD	Ω_{G_1}'	radians/second ²
OMG1D	θ_{G_1}'	radians/second
THTG1	θ_{G_a}	degrees
RUNOUT	RO	feet
SH	$(\bar{r}_H \cdot \bar{I}_2)$	feet
VH	$(\bar{r}_H \cdot \bar{I}_3)$	feet
PHIHK	ϕ_H	degrees
ALPHC	α_C	degrees
FH1	F_H^1	pounds
FH2	F_H^2	pounds
FH3	F_H^3	pounds
QBDDb	$q_B^{b''}$	inches/second ²
QBDb	$q_B^{b'}$	inches/second
QBb	q_B^b	inches

EQUIVALENCE TABLES

The technique that has been used in the coding of this routine is to place all input and output numbers in blank common. All input and output integers are contained in the set defined as NTEGER which is dimensioned 300. All input floating point numbers except initial conditions and output numbers are contained in in the set P which is dimensioned 2000. To make the program more easily interpreted, EQUIVALENCE statements are used to give the NTEGER and P numbers more recognizable names. The LAND program NTEGER and P equivalences are given below.

TABLE 3. NTEGER Equivalences

NTEGER	Dimension	Term	NTEGER	Dimension	Term
1	(1)	IDENT	24		
2	(1)	NPF1	25	(1)	NVEVV
3	(1)	NPF2			
4	(1)	NPF3			
5	(1)	NPF4			
6	(1)	NFIRST			
7	(1)	NT1			
8					
9	(1)	NTW1	49	(1)	NPAGE
10			50	(1)	NLINE
11	(1)	NHOOK	51	(1)	NSKIP
12	(1)	NTSKIP	52		
13	(1)	NEQ	53	(1)	NPRT
14	(1)	NMORE	54		
15	(1)	NBE	55		
16	(1)	NGE1	56	(110)	NTB1(1)
17	(1)	NGE2	165		NTB1(110)
18	(1)	NGE3	166	(1)	NTB21
19	(1)	NSTYP1	167	(1)	NTB22
20	(1)	NSTYP2			
21	(1)	NSTYP3			
22	(1)	NCASR1			
23	(1)	INIT			

TABLE 4. P Equivalences

P	Dimension	Term	P	Dimension	Term
1	(1)	Time step	27	(1)	A01
2	(1)	Run time	28	(1)	CD1
3	(3)	XN(1)	29	(1)	VOLS01
5		XN(3)	30	(1)	AHS1
6	(1)	KBULK	31	(1)	ANSE1
7	(1)	DENOIL	32	(1)	ANSC1
8			33	(1)	CDS1
9			34	(1)	RW1
10			35	(1)	MVIS1
11	(3)	XT1(1)	36	(1)	MV3S1
13		XT1(3)	37	(1)	MO2S1
14	(3)	XA1(1)	38	(1)	MOW1
16		XA1(3)	39		
17	(1)	WC13	40	(2)	ZQG1(1)
18	(1)	ETA1	41		ZQG1(2)
19	(1)	ZETA1	42	(1)	VW10
20	(1)	MUB1	43	(1)	AP1AVG
21	(1)	KBF1	44	(1)	MUR1
22	(1)	CBG1	45	(1)	MW1
23	(1)	KBG1	46	(1)	CCOEF1
24	(1)	VOLH01	47		
25	(1)	AH1	48		
26	(1)	AA1	49		

TABLE 4. P Equivalences (Continued)

P	Dimension	Term	P	Dimension	Term
50			75	(1)	MV1S2
51	(3)	XT2(1)	76	(1)	MV2S2
53		XT2(3)	77	(1)	MV3S2
54	(3)	XA2(1)	78	(1)	M01S2
56		XA2(3)	79	(1)	M02S2
57	(1)	WC23	80	(1)	M03S2
58	(1)	ETA2	81	(1)	MOW2
59	(1)	ZETA2	82		
60	(1)	MUB2	83	(2)	ZQG2(1)
61	(1)	KBF2	84		ZQG2(2)
62	(1)	CBG2	85	(1)	VW20
63	(1)	KBG2	86	(1)	AP2AVG
64	(1)	VOLH02	87	(1)	MUR2
65	(1)	AH2	88	(1)	MW2
66	(1)	AA2	89	(1)	CCOEF2
67	(1)	AO2	90		
68	(1)	CD2	91	(3)	XT3(1)
69	(1)	VOLS02	93		XT3(3)
70	(1)	AHS2	94	(3)	XA3(1)
71	(1)	ANSE2	96		XA3(3)
72	(1)	ANCE2	97	(1)	WC33
73	(1)	CDS2	98	(1)	ETA3
74	(1)	RW2	99	(1)	ZETA3

TABLE 4. P Equivalences (Continued)

P	Dimension	Term	P	Dimension	Term
100	(1)	MUB3	123	(2)	ZQG3(1)
101	(1)	KBF3	124		ZQG3(2)
102	(1)	CBG3	125	(1)	VW30
103	(1)	KBG3	126	(1)	AP3AVG
104	(1)	VOLH03	127	(1)	MUR3
105	(1)	AH3	128	(1)	MW3
106	(1)	AA3	129	(1)	CCOEF3
107	(1)	A03	130		
108	(1)	CD3	131	(3)	XH(1)
109	(1)	VOLS03	133		XH(3)
110	(1)	AHS3	134	(1)	LHV
111	(1)	ANSE3	135	(1)	LLP
112	(1)	ANSC3	136	(1)	PHIHK0
113	(1)	CDS3	137	(1)	LHP
114	(1)	RW3	138	(1)	KBAR
115	(1)	MV1S3	139	(1)	DBAR
116	(1)	MV2S3	140	(1)	BC
117	(1)	MV3S3	141	(1)	VS
118	(1)	MO1S3	142	(1)	VHPTC
119	(1)	MO2S3	143	(1)	MUC
120	(1)	MO3S3	144	(1)	RUNMAX
121	(1)	MOW3	145		
122					

TABLE 4. P Equivalences (Continued)

P	Dimension	Term	P	Dimension	Term
146	(3)	XTH(1)	171	(1)	CZAL
148		XTH(3)	172	(1)	CYBT
149	(1)	SIGT	173	(1)	CXDL
150	(1)	THRUST	174	(1)	CZDL
151	(1)	MV1V1	175	(1)	CMAL
152	(1)	M0101	176	(1)	CLBT
153	(1)	M0102	177	(1)	CNBT
154	(1)	M0103	178	(1)	CMDL
155	(1)	M0201	179	(1)	CX0
156	(1)	M0202	180	(1)	CZ0
157	(1)	M0203	181	(1)	CM0
158	(1)	M0301	182	(1)	ALFREF
159	(1)	M0302	183	(1)	DELREF
160	(1)	M0303	184		
161	(3)	XP(1)	185		
163		XP(3)	186		
164	(1)	VWIND	187	(1)	VA
165	(1)	RHO	188	(1)	VE
166	(1)	S	189	(1)	VV
167	(1)	CBAR	190	(1)	PITCH
168	(1)	B	191	(1)	ROLL
169	(1)	DELTA			
170	(1)	CXAL			

TABLE 4. P Equivalences (Continued)

P	Dimension	Term	P	Dimension	Term
209	(8)	CIQA(1)	418	(1)	ZQB88
216		CIQA(8)	419		
			420		
225	(8)	CIQ0(1)	421	(1)	KQB11
232		CIQ0(8)	422	(1)	KQB22
			423	(1)	KQB33
401	(1)	MQB11	424	(1)	KQB44
402	(1)	MQB22	425	(1)	KQB55
403	(1)	MQB33	426	(1)	KQB66
404	(1)	MQB44	427	(1)	KQB77
405	(1)	MQB55	428	(1)	KQB88
406	(1)	MQB66	429		
407	(1)	MQB77	430		
408	(1)	MQB88	431	(1)	PBH11
409			432	(1)	PBH21
410			433	(1)	PBH31
411	(1)	ZQB11	434	(1)	PBH12
412	(1)	ZQB22	435	(1)	PBH22
413	(1)	ZQB33	436	(1)	PBH32
414	(1)	ZQB44	437	(1)	PBH13
415	(1)	ZQB55	438	(1)	PBH23
416	(1)	ZQB66	439	(1)	PBH33
417	(1)	ZQB77	440	(1)	PBH14

TABLE 4. P Equivalences (Continued)

P	Dimension	Term
441	(1)	PBH24
442	(1)	PBH34
443	(1)	PBH15
444	(1)	PBH25
445	(1)	PBH35
446	(1)	PBH16
447	(1)	PBH26
448	(1)	PBH36
449	(1)	PBH17
450	(1)	PBH27
451	(1)	PBH37
452	(1)	PBH18
453	(1)	PBH28
454	(1)	PBH38

TABLE 5. Y Equivalences

Y	Dimension	Term	Y	Dimension	Term
1	(1)	T	26	(1)	BTAS1
2	(3)	VB(1)	27	(1)	BTAS2
4		VB(3)	28	(1)	BTAS3
5	(1)	D	29	(1)	DLSU1
6	(1)	S	30	(1)	DLSU2
7	(1)	V	31	(1)	DLSU3
8	(3)	OMEGB(1)	32	(1)	DLSL1
10		OMEGB(3)	33	(1)	DLSL2
11	(1)	PHIR	34	(1)	DLSL3
12	(1)	THETR	35	(2)	QG1D(1)
13	(1)	PSIR	36		QG1D(2)
14	(1)	S1D	37	(2)	QG2D(1)
15	(1)	S2D	38		QG2D(2)
16	(1)	S3D	39	(2)	QG3D(1)
17	(1)	S1	40		QG3D(2)
18	(1)	S2	41	(2)	QG1(1)
19	(1)	S3	42		QG1(2)
20	(1)	OMW1	43	(2)	QG2(1)
21	(1)	OMW2	44		QG2(2)
22	(1)	OMW3	45	(2)	QG3(1)
23	(1)	BETA1	46		QG3(2)
24	(1)	BETA2			
25	(1)	BETA3			

TABLE 5. Y Equivalences (Continued)

Y	Dimension	Term
47	(8)	QBD(1)
54		QBD(8)
55	(8)	QB(1)
62		QB(8)
63	(1)	OMG1D
64	(1)	THTG1R

TABLE 6. DYDX Equivalences

DYDX	Dimension	Term	DYDX	Dimension	Term
1	(1)	1.0	26	(1)	BTAS1D
2	(3)	VBD(1)	27	(1)	BTAS2D
4		VBD(3)	28	(1)	BTAS3D
5	(1)	DD	29	(1)	DLSU1D
6	(1)	SD	30	(1)	DLSU2D
7	(1)	VD	31	(1)	DLSU3D
8	(3)	OMEGBD(1)	32	(1)	DLSL1D
10		OMEGBD(3)	33	(1)	DLSL2D
11	(1)	PHIRD	34	(1)	DLSL3D
12	(1)	THETRD	35	(2)	QG1DD(1)
13	(1)	PSIRD	36		QG1DD(2)
14	(1)	S1DD	37	(2)	QG2DD(1)
15	(1)	S2DD	38		QG2DD(2)
16	(1)	S3DD	39	(2)	QG3DD(1)
17	(1)	SS1D	40		QG3DD(2)
18	(1)	SS2D	41	(2)	QQG1D(1)
19	(1)	SS3D	42		QQG1D(2)
20	(1)	OMW1D	43	(2)	QQG2D(1)
21	(1)	OMW2D	44		QQG2D(2)
22	(1)	OMW3D	45	(2)	QQG3D(1)
23	(1)	BETA1D	46		QQG3D(2)
24	(1)	BETA2D			
25	(1)	BETA3D			

TABLE 6. DYDX Equivalences (Continued)

DYDX	Dimension	Term
47	(8)	QBDD(1)
54		QBDD(8)
55	(8)	QQBD(1)
62		QQBD(8)
63	(1)	OMG1DD
64	(1)	OOMG1D

TABLE 7. Interpolation Functions

Table	Dimension		Output / Input	
Single Entry Table	1	(110)	$XIA1(1) = \xi_{A_1}^1 / S1 = s_1$	
"	"	2	$XIA1(3) = \xi_{A_1}^3 / S1 = s_1$	
"	"	3	$XIA1D(1) = \xi_{A_1}^1 / S1 = s_1$	
"	"	4	$XIA1D(3) = \xi_{A_1}^3 / S1 = s_1$	
"	"	5	$FG1(3) = \tilde{F}_{G_1}^3 [I + v_{W_{10}}] / VTR1 = v_{W_1} - v_{W_{10}}$	
"	"	6	$AP1 = A_{P_1} / S1 = s_1$	
"	"	7	$PA1 = p_{A_1} / S1 = s_1$	
"	"	8	$MUG1 = \mu_{G_1} / SPR1 = R_1$ $s_1 s_1$	
"	"	9	$A(7,7) = MS1S1 = (M) / S1 = s_1$	
"	"	10	$BU1(1) = BFU_1^1 / S1 = s_1$	
"	"	11	$BU1(2) = BFU_1^2 / S1 = s_1$	
"	"	12	$BU1(3) = BFU_1^3 / S1 = s_1$	
"	"	13	$BL1(1) = BFL_1^1 / S1 = s_1$	
"	"	14	$BL1(2) = BFL_1^2 / S1 = s_1$	
"	"	15	$BL1(3) = BFL_1^3 / S1 = s_1$	
"	"	16	$MQG1(1,1) = (M_{1 \ 1}^{q_{G_1} \ q_{G_1}}) [I, \underline{0}] / S1 = s_1$	
"	"	17	$MQG1(2,2) / S1$	
"	"	18	$KQG1(1,1) = K_{G_1} [I, \underline{0}] / S1 = s_1$	
"	"	19	$KQG1(2,2) / S1$	
"	"	20	$PGA1(1,1) = \Phi_{G_{A_1}}^1 [I, \underline{0}] / S1 = s_1$	
"	"	21	$PGA1(2,1) / S1$	
"	"	22	$PGA1(3,1) / S1$	

TABLE 7. Interpolation Functions (Continued)

Table	Dimension				Output / Input
Single Entry Table 23	(110)				PGA1(1,2) / S1
"	"	"	24	"	PGA1(2,2) / S1
"	"	"	25	"	PGA1(3,2) / S1
"	"	"	26	"	$\Omega_{G_1} \Omega_{G_1} / S1 = s_1$
"	"	"	27	"	$PBA1(1,1) = \Phi_{BG_{A_1}}^1 / S1 = s_1$
"	"	"	28	"	PBA1(2,1) / S1
"	"	"	29	"	PBA1(3,1) / S1
"	"	"	30	"	PBA1(1,2) / S1
"	"	"	31	"	PBA1(2,2) / S1
"	"	"	32	"	PBA1(3,2) / S1
"	"	"	33	"	PBA1(1,3) / S1
"	"	"	34	"	PBA1(2,3) / S1
"	"	"	35	"	PBA1(3,3) / S1
"	"	"	36	"	PBA1(1,4) / S1
"	"	"	37	"	PBA1(2,4) / S1
"	"	"	38	"	PBA1(3,4) / S1
"	"	"	39	"	PBA1(1,5) / S1
"	"	"	40	"	PBA1(2,5) / S1
"	"	"	41	"	PBA1(3,5) / S1
"	"	"	42	"	PBA1(1,6) / S1
"	"	"	43	"	PBA1(2,6) / S1
"	"	"	44	"	$PBA1(3,6) = \Phi_{BG_{A_1}}^3 / S1 = s_1$

TABLE 7. Interpolation Functions (Continued)

Table	Dimension				Output / Input
Single Entry Table	45	(110)			PBA1(1,7) / S1
"	"	"	46	"	PBA1(2,7) / S1
"	"	"	47	"	PBA1(3,7) / S1
"	"	"	48	"	PBA1(1,8) / S1
"	"	"	49	"	PBA1(2,8) / S1
"	"	"	50	"	PBA1(3,8) / S1
"	"	"	51	"	$XIA2(1) = \xi_{A_2}^1 / S2 = s_2$
"	"	"	52	"	$XIA2(2) = \xi_{A_2}^2 / S2 = s_2$
"	"	"	53	"	$XIA2(3) = \xi_{A_2}^3 / S2 = s_2$
"	"	"	54	"	$XIA2D(1) = \xi_{A_2}^{1,} / S2 = s_2$
"	"	"	55	"	$XIA2D(2) = \xi_{A_2}^{2,} / S2 = s_2$
"	"	"	56	"	$XIA2D(3) = \xi_{A_2}^{3,} / S2 = s_2$
"	"	"	57	"	$FG2(3) = \tilde{F}_{G_2}^3 [I + v_{W_{20}}] / VTR2 = v_{W_2} - v_{W_{20}}$
"	"	"	58	"	$AP2 = A_{P_2} / S2 = s_2$
"	"	"	59	"	$PA2 = p_{A_2} / S2 = s_2$
"	"	"	60	"	$MUG2 = \mu_{G_2} / SPR2 = R_2$ $s_2 s_2$
"	"	"	61	"	$A(8,8) = MS2S2 = (M) / S2 = s_2$
"	"	"	62	"	$BU2(1) = BFU_2^1 / S2 = s_2$
"	"	"	63	"	$BU2(2) = BFU_2^2 / S2 = s_2$
"	"	"	64	"	$BU2(3) = BFU_2^3 / S2 = s_2$
"	"	"	65	"	$BL2(1) = BFL_2^1 / S2 = s_2$

TABLE 7. Interpolation Functions (Continued)

Table					Dimension	Output / Input
Single Entry Table	66				(110)	$BL2(2) = BFL_2^2 / S2 = s_2$
"	"	"	67	"		$BL2(3) = BFL_2^3 / S1 = s_2$
"	"	"	68	"	$MQG2(1,1) = (M_{G_2}^{q_{G_2}}) [I, \underline{0}]$	$/ S2 = s_2$
"	"	"	69	"		$MQG2(2,2) / S2$
"	"	"	70	"	$KQG2(1,1) = K_{G_2} [I, \underline{0}]$	$/ S2 = s_2$
"	"	"	71	"		$KQG2(2,2) / S2$
"	"	"	72	"	$PGA2(1,1) = \Phi_{G_{A_2}}^1 [I, \underline{0}]$	$/ S2 = s_2$
"	"	"	73	"		$PGA2(2,1) / S2$
"	"	"	74	"		$PGA2(3,1) / S2$
"	"	"	75	"		$PGA2(1,2) / S2$
"	"	"	76	"		$PGA2(2,2) / S2$
"	"	"	77	"		$PGA2(3,2) / S2$
"	"	"	78	"	$PBA2(1,1) = \Phi_{BG_{A_2}}^1$	$/ S2 = s_2$
"	"	"	79	"		$PBA2(2,1) / S2$
"	"	"	80	"		$PBA2(3,1) / S2$
"	"	"	81	"		$PBA2(1,2) / S2$
"	"	"	82	"		$PBA2(2,2) / S2$
"	"	"	83	"		$PBA2(3,2) / S2$
"	"	"	84	"		$PBA2(1,3) / S2$
"	"	"	85	"		$PBA2(2,3) / S2$
"	"	"	86	"		$PBA2(3,3) / S2$
"	"	"	87	"		$PBA2(1,4) / S2$
"	"	"	88	"		$PBA2(2,4) / S2$

TABLE 7. Interpolation Functions (Continued)

Table	Dimension				Output / Input
Single Entry Table 89	(110)				PBA2(3,4) / S2
"	"	"	90	"	PBA2(1,5) / S2
"	"	"	91	"	PBA2(2,5) / S2
"	"	"	92	"	PBA2(3,5) / S2
"	"	"	93	"	PBA2(1,6) / S2
"	"	"	94	"	PBA2(2,6) / S2
"	"	"	95	"	PBA2(3,6) / S2
"	"	"	96	"	PBA2(1,7) / S2
"	"	"	97	"	PBA2(2,7) / S2
"	"	"	98	"	PBA2(3,7) / S2
"	"	"	99	"	PBA2(1,8) / S2
"	"	"	100	"	PBA2(2,8) / S2
"	"	"	101	"	PBA2(3,8) / S2
"	"	"	102	"	$MS1QG(1) = (M^{s_1 q_{G_1}}_1)[I, \underline{0}] / S1 = s_1$
"	"	"	103	"	MS1QG(2) / S1
"	"	"	104	"	$MS2QG(1) = (M^{s_2 q_{G_1}}_1)[I, \underline{0}] / S2 = s_2$
"	"	"	105	"	MS2QG(2) / S2
"	"	"	106		
"	"	"	107		
"	"	"	108		
"	"	"	109		
"	"	"	110	"	$FH1NON = \hat{F}_{H_1} / (M^{V_{B_1} V_{B_1}}_1)(d'(0))^2 / RUNNON = RO/RO_M$

SUMMARY OF EQUATIONS

The equations coded in the program LAND were extracted from Volume 1. The Volume 1 equations were reduced in scope for the coding of the program LAND to include only the terms needed for the simulation of the arrested landing of a fighter or attack type aircraft. However, this program can be used to simulate the landing dynamics and obtain the landing gear loads for other classes of aircraft. The program LAND includes the following degrees of freedom:

Three translational degrees of freedom for the rigid airframe.

Three rotational degrees of freedom for the rigid airframe.

Eight flexible degrees of freedom for the airframe.

Rigid body motion of each of the landing gears relative to the airframe.

Two flexible body degrees of freedom for each of the three landing gears.

Rotational motion of the gear wheel about the gear axle.

The equations of motion for these degrees of freedom are given below. The mass terms appearing in these equations are defined in Appendix D of Volume 1. The derivation of the body forces, arresting hook forces, ground forces, aerodynamic forces and moments, thrust forces and shock strut forces found in these equations is given in Volume 1. The coded equations for these forces and moments are summarized below.

It is noted that the symbol 0 represents the simple graph that contains the point (0, 0) and has zero slope. This graph is useful for the purpose of maintaining the functional notation of the simple surfaces and graphs as defined in Volume 1 and still achieve the desired simplifications.

Equations of Motion

The V_B^1 equation is

$$\begin{aligned}
 & (M_{11}^{V_B V_B}) V_B^1 + \sum_{a=1}^{N_G} (M_{11}^{V_B s_a}) [\underline{0}, \underline{0}] s_a'' \\
 & - \Omega_B^3 (M_{11}^{V_B V_B}) V_B^2 + \Omega_B^2 (M_{11}^{V_B V_B}) V_B^3 \\
 & = \sum_{a=1}^{N_G} F_{G_a}^b (\gamma_{B_1}^d \delta_{bd}) + g (M_{11}^{V_B V_B}) \gamma_{B_1}^3 + F_P^b \delta_{1b} \\
 & + F_H^b (\gamma_{B_1}^d \delta_{bd}) + F_T^b \delta_{1b}.
 \end{aligned}$$

The V_B^2 equation is

$$\begin{aligned}
 & (M_{11}^{V_B V_B}) V_B^2 + (M_{22}^{V_B s_2}) [\underline{0}, \underline{0}] s_2'' + (M_{33}^{V_B s_3}) [\underline{0}, \underline{0}] s_3'' \\
 & + \Omega_B^3 (M_{11}^{V_B V_B}) V_B^1 - \Omega_B^1 (M_{11}^{V_B V_B}) V_B^3 \\
 & = \sum_{a=1}^{N_G} F_{G_a}^b (\gamma_{B_2}^d \delta_{bd}) + g (M_{11}^{V_B V_B}) \gamma_{B_2}^3 + F_P^b \delta_{2b} \\
 & + F_H^b (\gamma_{B_2}^d \delta_{bd}).
 \end{aligned}$$

The v_B^3 equation is

$$\begin{aligned}
 & (M_{11}^{v_B v_B}) v_B^3 + \sum_{a=1}^{N_G} (M_{33}^{v_B s_a}) [\underline{0}, \underline{0}] s_a'' \\
 & - \Omega_B^2 ((M_{11}^{v_B v_B}) v_B^1 + \Omega_B^1 ((M_{11}^{v_B v_B}) v_B^2 \\
 & = \sum_{a=1}^{N_G} F_{G_a}^b (\gamma_{B_3}^d \delta_{bd}) + g (M_{11}^{v_B v_B}) \gamma_{B_3}^3 + F_P^b \delta_{3b} \\
 & + F_H^b (\gamma_{B_3}^d \delta_{bd}) + F_T^b \delta_{3b}.
 \end{aligned}$$

The Ω_B^1 equation is

$$\begin{aligned} & \Omega_B \Omega_B (M_1^c) [\underline{0}, \underline{0}, \underline{0}, \underline{0}] \Omega_B^c + (\Omega_B^{s_2}) [\underline{0}, \underline{0}] s_2'' + (\Omega_B^{s_3}) [\underline{0}, \underline{0}] s_3'' \\ & - \Omega_B^3 (M_2^c) [\underline{0}, \underline{0}, \underline{0}, \underline{0}] \Omega_B^c + \Omega_B^2 (\Omega_B \Omega_B) (M_3^c) [\underline{0}, \underline{0}, \underline{0}, \underline{0}] \Omega_B^c \end{aligned}$$

$$\begin{aligned} & = \sum_{a=1}^{N_G} F_{G_a}^b (e_{1dh} \gamma_{B_f}^g l_{T_a}^d \delta_{bg} \delta^{fh} \\ & + e_{1dh} \gamma_{B_f}^g a_{G_{a_e}}^d (g_{A_a}^e + \xi_{A_a}^e [s_a]) \delta_{bg} \delta^{fh} \\ & + e_{f3b} \gamma_{B_1}^f w_{C_a}^3 + e_{f3b} \gamma_{B_1}^f v_{W_a}) \\ & + F_H^b e_{1dh} \gamma_{B_f}^g l_H^d \delta_{bg} \delta^{fh} + F_P^d e_{1cd} l_{NP}^c + M_P^b \delta_{1b}. \end{aligned}$$

The Ω_B^2 equation is

$$\begin{aligned}
& (\mathcal{M}_2^c) [\underline{0}, \underline{0}, \underline{0}, \underline{0}] \Omega_B^c + \sum_{a=1}^{N_G} (\mathcal{M}_2^c) [\underline{0}, \underline{0}] s_a'' \\
& + \Omega_B^3 ((\mathcal{M}_1^c) [\underline{0}, \underline{0}, \underline{0}, \underline{0}] \Omega_B^c - \Omega_B^1 (\mathcal{M}_3^c) [\underline{0}, \underline{0}, \underline{0}, \underline{0}] \Omega_B^c \\
& = \sum_{a=1}^{N_G} F_{Ga}^b (e_{2dh} \gamma_{B_f}^g l_{Ta}^d \delta_{bg} \delta^{fh} \\
& + e_{2dh} \gamma_{B_f}^g a_{Ga_e}^d (g_{A_a}^e + \xi_{A_a}^{e[s_a]}) \delta_{bg} \delta^{fh} \\
& + e_{f3b} \gamma_{B_2}^f w_{Ca}^3 + e_{f3b} \gamma_{B_2}^f v_{Wa}) \\
& + F_H^b e_{2dh} \gamma_{B_f}^g l_H^d \delta_{bg} \delta^{fh} + F_P^d e_{2ed} l_{NP}^c + M_P^b \delta_{2b} + F_T^c e_{2bc} l_T^b.
\end{aligned}$$

The Ω_B^3 equation is

$$\Omega_B \Omega_B (M_3^c) [\underline{0}, \underline{0}, \underline{0}, \underline{0}] \Omega_B^c, \quad \Omega_B^{s_2} (M_3^c) [\underline{0}, \underline{0}] s_2'' + \Omega_B^{s_3} (M_3^c) [\underline{0}, \underline{0}] s_3''$$

$$- \Omega_B^2 ((M_1^c) [\underline{0}, \underline{0}, \underline{0}, \underline{0}] \Omega_B^c + \Omega_B^1 ((M_2^c) [\underline{0}, \underline{0}, \underline{0}, \underline{0}] \Omega_B^c$$

$$= \sum_{a=1}^{N_G} F_{G_a}^b (e_{3dh} \gamma_{B_f}^g l_{T_a}^d \delta_{bg} \delta^{fh}$$

$$+ e_{3dh} \gamma_{B_f}^g a_{G_{a_e}}^d (g_{A_a}^e + \xi_{A_a}^{e[s_a]}) \delta_{bg} \delta^{fh}$$

$$+ e_{f3b} \gamma_{B_3}^f w_{C_a}^3 + e_{f3b} \gamma_{B_3}^f v_{W_a})$$

$$+ F_H^b e_{3dh} \gamma_{B_f}^g l_H^d \delta_{bg} \delta^{fh} + F_P^d e_{3ed} l_{NP}^c + M_P^b \delta_{3b}.$$

The q_B^b equation is

$$\begin{aligned}
 & (M_{bc}^{q_B q_B}) [\underline{0}, \underline{0}, \underline{0}, \underline{0}] q_B^b \\
 &= \sum_{a=1}^{N_G} F_{Ga}^b \gamma_{Ga_h}^e \gamma_{Be}^g \Phi_{BG_{A_a c}}^h [s_a, \underline{0}] \delta_{bg} \\
 &+ F_H^b \gamma_{B_d}^e \Phi_{BH_c}^d \delta_{be} + q_A^b \delta_{bc} \\
 &- K_{B_c} q_B^d \delta_{cd} - C_{B_c} q_B^d \delta_{cd}.
 \end{aligned}$$

The s_a equation is

$$\begin{aligned}
 & (M_{sa}^{s_a s_a}) [s_a] s_a'' + (M_{sb}^{s_a q_{Ga}}) [s_a, \underline{0}] q_{Ga}'' \\
 &= F_{s_a} + F_{Ga}^b (a_{Ga_c}^e \gamma_{Be}^g \xi_{A_a}^{c, [s_a]} \delta_{bg}) \\
 &+ g (M_{c}^{V_B s_a}) [\underline{0}, \underline{0}] \gamma_{B_d}^3 \delta^{cd}.
 \end{aligned}$$

The Ω_{W_a} equation is

$$(\Omega_{W_a} \Omega_{W_a}) \Omega_{W_a},$$

$$= F_{G_a}^b (e_{c3b} \gamma_{B_2}^c w_{C_a}^3$$

$$+ e_{c3b} \gamma_{B_2}^c v_{W_a}).$$

The $q_{G_a}^b$ equation is

$$(M_{G_a}^b q_{G_a}^c) [s_a, \underline{0}] q_{G_a}^b + (M_{G_a}^c q_{G_a}^a) [s_a, \underline{0}] s_a$$

$$= F_{G_a}^b (a_{G_a}^e \gamma_{B_e}^g \Phi_{G_a}^h [s_a, \underline{0}] \delta_{bg})$$

$$- K_{G_a} [s_a, \underline{0}] q_{G_a}^b \delta_{bc} - c_{G_a} [s_a, \underline{0}] q_{G_a}^b \delta_{bc}.$$

The Ω_{G_a} equation is

$$(\Omega_{G_a} \Omega_{G_a}) [s_a] \Omega_{G_a},$$

$$= F_{G_a}^b a_{G_a}^e \gamma_{B_e}^g e_{3hc} (g_{A_a}^h + \xi_{A_a}^h [s_a]) \delta^{cd} \delta_{bg}$$

$$- M_C [\theta_{G_a}, \Omega_{G_a}].$$

Initial Conditions

The aircraft is assumed to be oriented at $t = 0$ such that one point of the aircraft has just made contact with the ground surface. The candidate points for contact are the landing gear tires and the arresting hook. There are some cases when there are multiple points of simultaneous contact at the time $t = 0$.

The transformation $\gamma_B^b(0)$; $b = 1, 3$ and $c = 1, 3$ may be established from the Euler angles $\psi(0)$, $\theta(0)$ and $\phi(0)$ which are the initial yaw, pitch and roll angles of the airframe. Appendix G of Volume 1 defines the elements of this transformation.

The rigid body translational velocity of the airframe reference point N at $t = 0$ is

$$\bar{r}'(0) = v_B^c(0) \bar{I}_{B_c}(0) = \zeta^b(0) \bar{I}_b = d'(0) \bar{I}_1 + s'(0) \bar{I}_2 + v'(0) \bar{I}_3.$$

Normally, the horizontal velocity, the vertical velocity or sinking velocity and the lateral velocity of the point N with respect to the ground surface (i.e. $\zeta^1(0) \bar{I}_1$, $\zeta^2(0) \bar{I}_2$ and $\zeta^3(0) \bar{I}_3$) are specified at $t = 0$. Therefore, the body axis components of the initial velocity are

$$v_B^e(0) = \zeta^b(0) \gamma_{B_d}^f(0) \delta_{bf} \delta^{de}.$$

Also, when the initial angular velocity is not zero, the components of

the initial angular velocity may be expressed in terms of the initial Euler angle rates as follows:

$$\Omega_B^1(0) = \phi'(0) - \sin(\theta(0)) \psi'(0).$$

$$\Omega_B^2(0) = \cos(\phi(0)) \theta'(0) + \cos(\theta(0)) \sin(\phi(0)) \psi'(0).$$

$$\Omega_B^3(0) = -\sin(\phi(0)) \theta'(0) + \cos(\theta(0)) \cos(\phi(0)) \psi'(0).$$

The b th airframe modal displacement for b in $[1, N_{BE}]$ at $t = 0$ is given below. It is assumed that the functions that are dependent on the stroke of the landing gears can be evaluated with the initial stroke equal to zero. Therefore,

$$q_B^b(0) = \frac{1}{K_{B_b}} Q_A^b.$$

The initial position of the point N with respect to the ground reference point Q is defined as follows:

$$\zeta^1(0) = d(0) = \bar{r}(0) \cdot \bar{I}_1.$$

$$\zeta^2(0) = s(0) = \bar{r}(0) \cdot \bar{I}_2.$$

$$\zeta^3(0) = v(0) = \bar{r}(0) \cdot \bar{I}_3.$$

The number $d(0)$ is normally zero, the number $s(0)$ is used to orient the point N laterally with respect to the point S (see Appendix F of Volume 1) and the number $v(0)$ is computed from the following equation:

$$v(0) = -1_{T_a}^b \gamma_{B_b}^3(0) - \Phi_{BG_{A_{a_b}}}^{c(0,0)} \gamma_{G_{a_c}}^d \gamma_{B_d}^3(0) q_B^{b(0)} \\ - g_{A_a}^b a_{G_{a_b}}^{c(0)} \gamma_{B_c}^3(0) - w_{C_a}^3(0) - v_{W_{a_0}}.$$

The equation for $v(0)$ may be obtained as follows for the case where at $t = 0$ the arresting hook has just made contact with the ground surface:

$$v(0) = -1_H^b \gamma_{B_b}^3(0) - (-1_{HV} \sin(\phi_{H_0}) \gamma_{B_1}^3(0) + 1_{HV} \cos(\phi_{H_0}) \gamma_{B_3}^3(0)).$$

The a gear stroke at $t = 0$ is determined from the following equation:

$$s_a(0) = \frac{1}{K_{BG_a}} (-p_{A_a}(s_a(0)) A_{A_a}).$$

The hydraulic fluid expansion in the a gear fluid chamber and the a gear snubber chamber may be obtained at $t = 0$ from Appendix B in Volume 1 by the following equations:

$$\beta_a(0) = - \frac{p_{A_a}(s_a(0)) V_{H_a}(0)}{K_H}.$$

$$\beta_{S_a}(0) = - \frac{p_{A_a}(s_a(0)) V_{H_{S_a}}(0)}{K_H}.$$

The a gear bth modal displacement for b in $[1, N_{GE_a}]$ at $t = 0$ is assumed to be equal to zero.

Arresting Hook Force Equations

The equations for the arresting hook forces and arresting cable kinematics which are used in the computer program LAND were extracted from Appendix F of Volume 1. The definitions of the terms in these equations are given in that Appendix. The following equations, which are coded in LAND, do not include the numerical techniques used for the iterative solution of the nonlinear equations:

At $t = 0$,

$$d_{HP}(0) = \bar{r}_{HP}(0) \cdot \bar{I}_1 = d(0) + (l_H^b - \delta^{1b} l_{HV} \sin(\phi_{H_0}) + \delta^{3b} l_{HV} \cos(\phi_{H_0})) \gamma_{B_b}^1(0).$$

For $t > 0$,

$$v_H(t) = v(t) + l_H^b \gamma_{B_b}^3(t)$$

For $t < t_C$, the height of the hook point is checked to determine if it has made contact with the ground plane. This is accomplished by first computing the number $v_{HC}(t)$ from the equation

$$v_{HC}(t) = l_{HV} (-\sin(\phi_{H_1}) \gamma_{B_1}^3(t) + \cos(\phi_{H_0}) \gamma_{B_3}^3(t)).$$

If the number

$$v_C(t) = (v_{HC}(t) + v(t) + v_{HP}(t_C))$$

is equal to or greater zero then the hook is in contact with the ground surface. In this case the numbers $a(t)$ and $b(t)$ may be determined from the

following equations:

$$a^2(t) \left[\left(\frac{\gamma_{B_1}^3(t)}{\gamma_{B_3}^3(t)} \right)^2 + 1 \right] + a(t) \left[\frac{2 v_H(t) \gamma_{B_1}^3(t)}{(\gamma_{B_3}^3(t))^2} + \frac{2 \gamma_{B_1}^3(t) v_{HP}(t_C)}{(\gamma_{B_3}^3(t))^2} \right] + \left[\left(\frac{v_H(t)}{\gamma_{B_3}^3(t)} \right)^2 - 1_{HV}^2 + \frac{2 v_H(t) v_{HP}(t_C)}{(\gamma_{B_3}^3(t))^2} + \left(\frac{v_{HP}(t_C)}{\gamma_{B_3}^3(t)} \right)^2 \right] = 0.$$

$$b(t) = \frac{-(v_H(t) + v_{HP}(t_C)) - a(t) \gamma_{B_1}^3(t)}{\gamma_{B_3}^3(t)}.$$

Since

$$\bar{l}_{HV}(t) = a(t) \bar{l}_{B_1}(t) + b(t) \bar{l}_{B_3}(t),$$

the angle $\phi_H(t)$ is determined from the equation

$$\phi_H(t) = \cos^{-1} \left(\frac{b(t)}{(a(t)^2 + b(t)^2)^{0.5}} \right).$$

The number $d_{HP}(t)$ is then calculated from

$$\bar{d}_{HP}(t) = \bar{r}_{HP}(t) \cdot \bar{l}_1 = d(t) + (l_H^b - \delta^{1b} l_{HV} \sin(\phi_H)) + \delta^{3b} l_{HV} \cos(\phi_H) \gamma_{B_b}^1(t),$$

and the time of cable pick up is found by comparing this number with the number obtained from the equation

$$d_{HP}(t_C) = d_{HP}(0) + d_{BAR}.$$

The numbers $a_1(t)$, $b_1(t)$, $a_2(t)$, $b_2(t)$ and $\xi_H(t)$ are determined from the following equations:

$$a_1(t) \gamma_{B_1}^3(t) + b_1(t) \gamma_{B_3}^3(t) + b_2(t) = -v_H(t) - v_S. \quad (F-1)$$

$$a_1(t) \gamma_{B_1}^1(t) + b_1(t) \gamma_{B_3}^1(t) + a_2(t) = -(d_H(t) - d_{HP}(t_C)). \quad (F-2)$$

$$a_1^2(t) + b_1^2(t) = 1_{LP}^2. \quad (F-3)$$

$$- \gamma_{B_3}^1(t) a_1(t) a_2(t) + \gamma_{B_1}^1(t) b_1(t) a_2(t) \quad (F-4)$$

$$- \gamma_{B_3}^3(t) a_1(t) b_2(t) + \gamma_{B_1}^3(t) b_1(t) b_2(t) = 0.$$

$$\xi_H^2(t) = a_2^2(t) + b_2^2(t). \quad (F-5)$$

The following procedure is used for solution of these equations:

- (1) Assume a number for $b_1(t)$.
- (2) Calculate $a_1(t)$ from equation (F-3) (it is assumed that $a_1(t)$ is negative).
- (3) Calculate $b_2(t)$ from equation (F-1).
- (4) Calculate $a_2(t)$ from equation (F-2).
- (5) Calculate a new candidate for $b_1(t)$ from equation (F-4).
- (6) Go to step (2) of this process.

This procedure is terminated when the change in $b_1(t)$ is within the required precision.

$$\eta_H(t) = s(t) + l_H^b(t) \gamma_{B_b}^2(t) + a_1(t) \gamma_{B_1}^2(t) + b_1(t) \gamma_{B_3}^2(t).$$

The following equations are used to calculate the numbers $l_L(t)$, $l_R(t)$, $\alpha_L(t)$ and $\alpha_R(t)$:

$$x(t) = 2 (bc + \eta_H(t)) l_L(t).$$

$$y(t) = 2 \xi_H(t) l_L(t).$$

$$z(t) = (l_{HP}^2 - \xi_H^2(t) - (bc + \eta_H(t))^2 - l_L^2(t)).$$

$$(x^2(t) + y^2(t)) \sin^2(\alpha_L(t)) + 2 y(t) z(t) \sin(\alpha_L(t)) \quad (F-10)$$

$$+ (z^2(t) - x^2(t)) = 0.$$

$$\tan(\alpha_R(t)) = \frac{\sin(\alpha_L(t))}{\frac{2 bc}{l_L(t)} - \cos(\alpha_L(t))}. \quad (F-11)$$

$$l_H(t) = \frac{l_L(t) \sin(\alpha_L(t))}{\sin(\alpha_R(t))}. \quad (F-12)$$

If $|\epsilon_H(t)|$ is less than or equal to $|\epsilon_{H_L}(t)|$,

the hook will not slip on the cable and

$$l_L(t) - l_R(t) = k_{BAR}(t). \quad (F-13)$$

The numbers $l_L(t)$, $l_R(t)$, $Q_L(t)$ and $Q_R(t)$ for this case may be obtained as follows:

- (1) Assume a number for $l_L(t)$.
- (2) Calculate $Q_L(t)$ from equation (F-10).
- (3) Calculate $Q_R(t)$ from equation (F-11).
- (4) Calculate $l_R(t)$ from equation (F-12).
- (5) Calculate a new candidate for $l_L(t)$ from equation (F-13).
- (6) Go to step (2) in this process.

This procedure is terminated when the change in $l_L(t)$ is within the desired precision.

$$\epsilon_C(t) = \frac{\pi}{2} - \frac{Q_L(t)}{2} - \frac{Q_R(t)}{2}. \quad (F-14)$$

$$\sin(Q_L(t) + \epsilon_C(t) - \epsilon_H(t)) = \frac{\xi_H(t) - l_L(t) \sin(Q_L(t))}{l_{HP}}$$

$$\cos(Q_L(t) + \epsilon_C(t) - \epsilon_H(t)) = \frac{bc + \eta_H(t) - l_L(t) \cos(Q_L(t))}{l_{HP}}$$

$$\begin{aligned} \sin(\epsilon_H(t)) &= \sin(Q_L(t) + \epsilon_C(t)) \cos(Q_L(t) + \epsilon_C(t) - \epsilon_H(t)) \\ &- \cos(Q_L(t) + \epsilon_C(t)) \sin(Q_L(t) + \epsilon_C(t) - \epsilon_H(t)). \end{aligned}$$

$$\begin{aligned} \cos(\epsilon_H(t)) &= \cos(Q_L(t) + \epsilon_C(t)) \cos(Q_L(t) + \epsilon_C(t) - \epsilon_H(t)) \\ &+ \sin(Q_L(t) + \epsilon_C(t)) \sin(Q_L(t) + \epsilon_C(t) - \epsilon_H(t)). \end{aligned}$$

$$\tan(\epsilon_H(t)) = \frac{\sin(\epsilon_H(t))}{\cos(\epsilon_H(t))}.$$

In the event that $|\epsilon_H(t)|$ is greater than the limit angle $|\epsilon_{H_L}(t)|$, then $\hat{\epsilon}_H(t)$ which is calculated by the equation

$$\hat{\epsilon}_H(t) = \frac{\epsilon_H(t)}{|\epsilon_H(t)|} |\epsilon_{H_L}(t)| \text{ is substituted for } \epsilon_H(t).$$

$$\begin{aligned} l_L^2(t) = & (\xi_H(t) - l_{HP} \sin(\alpha_L(t) + \epsilon_C(t) - \hat{\epsilon}_H(t)))^2 \\ & + (bc + \eta_H(t) - l_{HP} \cos(\alpha_L(t) + \epsilon_C(t) - \hat{\epsilon}_H(t)))^2. \end{aligned} \quad (F-15)$$

For this case the numbers $\alpha_L(t)$, $\alpha_R(t)$, $l_L(t)$ and $l_R(t)$ are determined from the following procedure:

- (1) Assume a number for $l_L(t)$.
- (2) Calculate $\alpha_L(t)$ from equation (F-10).
- (3) Calculate $\alpha_R(t)$ from equation (F-11).
- (4) Calculate $l_R(t)$ from equation (F-12).
- (5) Calculate $\epsilon_C(t)$ from equation (F-14).
- (6) Calculate $l_L(t)$ from equation (F-15).
- (7) Go to step (2) in this process.

This procedure is terminated when the change in $l_L(t)$ is within the desired precision.

$$RO(t) = l_R(t) \sin(\alpha_R(t)).$$

$$\hat{F}_{H_1}(RO(t)) = F_{H_1}(t).$$

When the cable is slipping on the hook and $\epsilon_H(t)$ is greater than zero

$$|\bar{T}_R(t)| = \frac{F_{H_1}(t)}{(\exp(\mu_C (\alpha_L(t) + \alpha_R(t))) \sin(\alpha_L(t) + \sin(\alpha_R(t)))}.$$

$$|\bar{T}_L(t)| = |\bar{T}_R(t)| \exp(\mu_C (\alpha_L(t) + \alpha_R(t)))$$

For the case where the cable is slipping on the hook and $\epsilon_H(t)$ is less than zero

$$|\bar{T}_L(t)| = \frac{F_{H_1}(t)}{(\exp(\mu_C (\alpha_L(t) + \alpha_R(t))) \sin(\alpha_R(t)) + \sin(\alpha_L(t)))}.$$

$$|\bar{T}_R(t)| = |\bar{T}_L(t)| \exp(\mu_C (\alpha_L(t) + \alpha_R(t)))$$

$$|\bar{F}_{HP}(t)| = F_{HP}(t) = |\bar{T}_R(t)|^2 + |\bar{T}_L(t)|^2 + 2 |\bar{T}_R(t)| |\bar{T}_L(t)| \cos(2 \epsilon_C(t)).$$

$$\sin(\epsilon_{H_L}(t)) = \frac{(|\bar{T}_L(t)| - |\bar{T}_R(t)|) \sin(\epsilon_C(t))}{|\bar{F}_{HP}(t)|}.$$

When the cable is not slipping on the hook

$$|\bar{T}_L(t)| = \frac{|\bar{F}_{HP}(t)| \sin(\epsilon_H(t) + \epsilon_C(t))}{\sin(2 \epsilon_C(t))}.$$

$$|\bar{T}_R(t)| = \frac{F_{H_1}(t) - |\bar{T}_L(t)| \sin(\alpha_L(t))}{\sin(\alpha_R(t))}.$$

$$\tan(\alpha_C(t)) = \frac{-b_2(t)}{a_2(t)}.$$

$$\gamma_{H_1}^1(t) = \cos(\alpha_C(t)).$$

$$\gamma_{H_1}^3(t) = -\sin(\alpha_C(t)).$$

$$\gamma_{H_2}^2(t) = 1.$$

$$\gamma_{H_3}^1(t) = \sin(\alpha_C(t)).$$

$$\gamma_{H_3}^3(t) = \cos(\alpha_C(t)).$$

$$\text{All other } \gamma_{H_b}(t)^a = 0.$$

$$F_H^1(t) = -F_{HP}(t) \cos(\alpha_C(t)) \sin(\alpha_L(t) + \epsilon_C(t) - \epsilon_H(t)).$$

$$F_H^2(t) = -F_{HP}(t) \cos(\alpha_L(t) + \epsilon_C(t) - \epsilon_H(t)).$$

$$F_H^3(t) = F_{HP}(t) \sin(\alpha_C(t)) \sin(\alpha_L(t) + \epsilon_C(t) - \epsilon_H(t)).$$

Ground Force Equations

The equations for the forces on the landing gear tires from the ground are extracted mainly from Appendix E of Volume 1. The definitions for the terms in these equations are found in that Appendix and in the main body of Volume 1.

$$I_{W_{a_1}} = \frac{a_{G_{a_2}}^c (\gamma_{B_c}^2 \bar{I}_1 - \gamma_{B_c}^1 \bar{I}_2)}{[(a_{G_{a_2}}^c \gamma_{B_c}^1)^2 + (a_{G_{a_2}}^c \gamma_{B_c}^2)^2]^{0.5}}.$$

$$I_{W_{a_2}} = \frac{a_{G_{a_2}}^c (\gamma_{B_c}^1 \bar{I}_1 + \gamma_{B_c}^2 \bar{I}_2)}{[(a_{G_{a_2}}^c \gamma_{B_c}^1)^2 + (a_{G_{a_2}}^c \gamma_{B_c}^2)^2]^{0.5}}.$$

$$\bar{I}_{W_{a_3}} = \bar{I}_3.$$

$$\bar{r}_{A_a}^1(t) \cdot \bar{I}_{W_{a_1}}(t) = \gamma_{B_f}^b(t) \gamma_{W_{a_b}}^1(t) v_B^f(t)$$

$$\bar{r}_{A_a}^1(t) \cdot \bar{I}_{W_{a_2}}(t) = \gamma_{B_f}^b(t) \gamma_{W_{a_b}}^2(t) (v_B^f(t) + e^{fph} \Omega_B^e(t) (l_{T_a}^d(t)$$

$$+ a_{G_{a_q}}^d(t) (g_{A_a}^q(t) + \xi_{A_a}^q(s_a(t))) \delta_{ep} \delta_{dh}$$

$$+ a_{G_{a_d}}^b(t) \gamma_{B_b}^h(t) \gamma_{W_{a_h}}^2(t) e^{d3f} \Omega_{G_a}(t) (g_{A_a}^q(t) + \xi_{A_a}^q(s_a(t))) \delta_{qf}.$$

$$\bar{r}_{FA_a}'(t) = \bar{I}_{W_{a_1}}(t) \Omega_{W_a}(t) (w_{C_a}^3 + v_{W_a}(t)).$$

The a gear wheel has reached a spin up condition at the time t_{SU} when

$$(\bar{r}_{A_a}'(t_{SU}) + \bar{r}_{FA_a}'(t_{SU})) \cdot \bar{I}_{W_{a_1}}(t_{SU}) = 0.$$

For $t < t_{SU}$:

$$\begin{aligned} & (-\bar{r}_{A_a}'(t) \cdot \bar{I}_{W_{a_1}}(t) - \bar{r}_{FA_a}'(t) \cdot \bar{I}_{W_{a_1}}(t)) \bar{I}_{W_{a_1}}(t) \\ & + (-\bar{r}_{A_a}'(t) \cdot \bar{I}_{W_{a_2}}(t)) \bar{I}_{W_{a_2}}(t) \\ & = -A(t) \bar{I}_{W_{a_1}}(t) - B(t) \bar{I}_{W_{a_2}}(t) \end{aligned}$$

$$\nu_a(t) = \tan^{-1} \frac{B(t)}{A(t)}.$$

$$R_a(t) = \frac{(\bar{r}_{A_a}'(t) + \bar{r}_{FA_a}'(t)) \cdot \bar{I}_{W_{a_1}}}{\bar{r}_{A_a}'(t) \cdot \bar{I}_{W_{a_1}}}.$$

$$\hat{F}_{G_a}^1 = -\mu_{G_a}[R_a] |F_{G_a}^3| \cos[\nu_a].$$

$$\hat{F}_{G_a}^2 = -\mu_{G_a}[R_a] |F_{G_a}^3| \sin[\nu_a].$$

$$\hat{F}_{G_a}^3 = F_{G_a}^3 = \tilde{F}_{G_a}^3[v_{W_a}].$$

For $t > t_{SU}$:

$$C(t) = \bar{r}_{A_a}'(t) \cdot \bar{I}_{W_{a_1}}(t).$$

$$D(t) = \bar{r}_{A_a}'(t) \cdot \bar{I}_{W_{a_2}}(t).$$

$$\nu_{C_a}(t) = \tan^{-1} \frac{D(t)}{C(t)}.$$

$$\hat{F}_{G_a}^1 = -\mu_{R_a} |F_{G_a}^3|.$$

$$\hat{F}_{G_a}^2 = -F_{C_a} [\nu_{C_a}, F_{G_a}^3].$$

$$\hat{F}_{G_a}^3 = F_{G_a}^3 = \tilde{F}_{G_a}^3[v_{W_a}].$$

$$F_{G_a}^c = \hat{F}_{G_a}^b \gamma_{W_{a_d}}^e \delta_{be} \delta^{cd}.$$

Aerodynamic Force Equations

The equations for the aerodynamic forces are extracted from the main body of Volume 1. The sign convention that is used for the rigid body aerodynamic coefficients that are used to derive the rigid body aerodynamic forces for the LAND program is defined by the equations below.

$$\bar{V}_W = - \bar{I}_1 V_W$$

$$\alpha(t) = \tan^{-1} \frac{v_{B_3}^3(t) + \gamma_{B_3}^1(t) v_W}{v_{B_1}^1(t) + \gamma_{B_1}^1(t) v_W}.$$

$$\beta(t) = \tan^{-1} \frac{v_{B_2}^2(t) + \gamma_{B_2}^1(t) v_W}{v_{B_3}^1(t) + \gamma_{B_3}^1(t) v_W}.$$

$$q(t) = 1/2 \rho [(v_{B_1}^1(t) + \gamma_{B_1}^1(t) v_W)^2 + (v_{B_2}^2(t) + \gamma_{B_2}^1(t) v_W)^2 + (v_{B_3}^3(t) + \gamma_{B_3}^1(t) v_W)^2].$$

$$\Delta \alpha(t) = \alpha(t) - \alpha_{\text{reference}}.$$

$$\Delta \delta_e(t) = \delta_e(t) - \delta_{e_{\text{reference}}}.$$

$$X(t) = q(t) S (C_{X_G} + C_{X_\alpha} \Delta \alpha(t) + C_{X_{\delta_e}} \Delta \delta_e(t)).$$

$$Z(t) = q(t) S (c_{z_0} + c_{za} \Delta a(t) + c_{z\delta_e} \Delta \delta_e(t)).$$

$$F_P^1(t) = X(t) \cos(\alpha(t)) - Z(t) \sin(\alpha(t)).$$

$$F_P^2(t) = q(t) S (c_{y\beta} \beta(t)).$$

$$F_P^3(t) = X(t) \sin(\alpha(t)) + Z(t) \cos(\alpha(t)).$$

$$L(t) = q(t) S b c_{l\beta} \beta(t).$$

$$N(t) = q(t) S b c_{n\beta} \beta(t).$$

$$M_P^1(t) = L(t) \cos(\alpha(t)) - N(t) \sin(\alpha(t)).$$

$$M_P^2(t) = q(t) S \bar{c} (c_{m_0} + c_{ma} \Delta a(t) + c_{m\delta_e} \Delta \delta_e(t)).$$

$$M_P^3(t) = L(t) \sin(\alpha(t)) + N(t) \cos(\alpha(t)).$$

$$Q_A^b(t) = q S (c_{Q_0}^b + c_{Q;a}^b \Delta a(t)) \quad (b = 1, N_{BE}).$$

Shock Strut Force Equations

The equations for the shock strut forces are taken from Appendix B in Volume 1. The definitions of the terms in the equations are given in that Appendix.

For the type I shock strut:

$$F_{S_a}(t) = p_{AMB} A_{A_a} - p_{H_a}(t) (A_{H_a} - A_{P_a}(s_a(t))) \\ + p_{H_{S_a}}(t) (A_{H_{S_a}} - A_{N_{S_a}}(p_{H_{S_a}}(t))) - p_{A_a}(s_a(t)) A_{A_a} + F_{F_a}(t) \quad \text{for } s_a \geq 0.$$

$$p_{H_{S_a}}(t) = p_{T_{S_a}}(t) - p_{A_a}(s_a(t)).$$

$$A_{P_a}(t) = A_{O_a} - A_{N_a}(s_a(t)).$$

$$F_{S_a}(t) = p_{AMB} A_{A_a} - p_{H_a}(t) (A_{H_a} - A_{P_a}(s_a(t))) \\ + p_{H_{S_a}}(t) (A_{H_{S_a}} - A_{N_{S_a}}(p_{H_{S_a}}(t))) - p_{A_a}(s_a(t)) A_{A_a} + F_{F_a}(t) \\ - K_{BG_a} s_a(t) - C_{BG_a} s_a'(t) \quad \text{for } s_a < 0.$$

$$p_{T_a}(t) = \frac{-K_H}{V_{H_a}(t)} \beta_a(t) \quad \text{if } \beta_a(t) \text{ is } < 0.$$

$$p_{T_a}(t) = 0 \quad \text{if } \beta_a(t) \text{ is } \geq 0.$$

$$\beta_a' = C_{D_a} A_{N_a} [s_a] v_{H_a} + v_{H_a}'.$$

$$v_{H_a}(t) = \left(2 \frac{p_{H_a}(t)}{\rho_H}\right)^{0.5}$$

$$\text{for } p_{H_a}(t) > 0.$$

$$v_{H_a}(t) = 0$$

$$\text{for } p_{H_a}(t) = 0.$$

$$v_{H_a}(t) = - \left(-2 \frac{p_{H_a}(t)}{\rho_H}\right)^{0.5}$$

$$\text{for } p_{H_a}(t) < 0.$$

$$v_{H_a}(t)' = - (A_{H_a} - A_{P_a}(s_a(t))) s_a(t)'.$$

$$p_{T_{S_a}}(t) = \frac{-K_H}{v_{H_{S_a}}(t)} \beta_{S_a}(t)$$

$$\text{if } \beta_{S_a}(t) \text{ is } < 0.$$

$$p_{T_{S_a}}(t) = 0$$

$$\text{if } \beta_{S_a}(t) \geq 0.$$

$$\beta_{S_a}(t)' = C_{D_{S_a}} A_{N_{S_a}}(p_{H_{S_a}}(t)) v_{H_{S_a}}(t) + v_{H_{S_a}}'(t).$$

$$v_{H_{S_a}}(t) = \left(2 \frac{p_{H_{S_a}}(t)}{\rho_H}\right)^{0.5}$$

$$\text{for } p_{H_{S_a}}(t) > 0.$$

$$v_{H_{S_a}}(t) = 0$$

$$\text{for } p_{H_{S_a}}(t) = 0.$$

$$v_{H_{S_a}}(t) = - \left(-2 \frac{p_{H_{S_a}}(t)}{\rho_H}\right)^{0.5}$$

$$\text{for } p_{H_{S_a}}(t) < 0.$$

$$v_{H_{S_a}}(t)' = A_{H_{S_a}} s_a'(t).$$

$$v_{A_a}(t) = v_{A_{0_a}} - A_{A_a} s_a(t).$$

For the type II shock strut:

$$F_{S_a} = p_{AMB} A_{A_a} - p_{H_a}(t) (A_{H_a} - A_{P_a}(s_a(t)) - A_{H_{S_a}}) + p_{H_{S_a}}(t) (A_{H_{S_a}} - A_{N_{S_a}}(p_{H_{S_a}}(t))) - p_{A_a}(s_a(t)) A_{A_a} + F_{F_a}(t) \quad \text{for } s_a(t) \geq 0.$$

$$p_{H_{S_a}}(t) = p_{T_{S_a}}(t) - p_{I_a}(t).$$

For the case where s_a is less than zero, the same stiffness and damping terms that were used for the type I shock strut are included.

$$v_{H_a}(t)' = -C_{D_{S_a}} A_{N_{S_a}}(p_{H_{S_a}}(t)) v_{H_{S_a}}(t) - (A_{H_a} - A_{P_a}(s_a(t))) s_a'(t).$$

$$F_{G_{A_{a_b}}}(t) = -M_{W_a} \alpha_{G_{a_b}}^1(t) (v_B^1(t) + \Omega_B^2 v_B^3(t) - \Omega_B^3 v_B^2(t))$$

$$- M_{W_a} \alpha_{G_{a_b}}^2(t) (v_B^2(t)' + \Omega_B^3 v_B^1(t) - \Omega_B^1 v_B^3(t))$$

$$- M_{W_a} \alpha_{G_{a_b}}^3(t) (v_B^3(t)' + \Omega_B^1 v_B^2(t) - \Omega_B^2 v_B^1(t))$$

$$- M_{W_a} \alpha_{G_{a_b}}^g(t) e^{hcd} \Omega_B^p(t)' \delta_{cp} (1_{T_a}^q$$

$$+ z_{A_a}^f \alpha_{G_{a_f}}^q(t) + \xi_{A_a}^f(s_a(t)) \alpha_{G_{a_f}}^q \delta_{dq} \delta_{gh}$$

$$- M_{W_a} \xi_{A_a}^{h_1}(s_a(t)) s_a''(t) \delta_{bh}$$

$$- M_{W_a} \Phi_{BG_{A_a r}}^f(s_a(t), \underline{0}(t)) q_B^{r''}(t) \hat{a}_{G_{a_f}}^{h(t)} \delta_{bh}$$

$$- M_{W_a} \Phi_{G_{A_a r}}^f(s_a(t), \underline{0}(t)) q_{G_a}^{r''}(t) \delta_{bf}$$

$$+ F_{G_a}^g(t) \gamma_{B_d}^c(t) a_{G_{a_b}}^d(t) \delta_{cg} + M_{W_a} g \gamma_{B_d}^3(t) a_{G_{a_b}}^d(t).$$

$$F_{F_a}(t) = - \frac{s_a'(t)}{|s_a'(t)|} (\mu_{BU} (BFU_a^b(s_a(t)) F_{G_{A_{a_b}}}(t)$$

$$+ \mu_{BL} (BFL_a^d(s_a(t)) F_{G_{A_{a_d}}}(t)).$$

APPENDIX A
SOURCE DECK LISTING

PROGRAM LAND(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT)		
MAIN PROGRAM FOR DIFFERENTIAL EQUATION INTEGRATION ROUTINE		MAIN 1
ARRESTED LANDING ANALYSIS		MAIN 2
	COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),	MAIN 3
1	NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)	MAIN 4
	EQUIVALENCE (NTEGER(48), NZERO)	MAIN 5
10	NZERO = 0	MAIN 6
	CALL GUIDE	MAIN 7
	GO TO 10	MAIN 8
	END	MAIN 9
SUBROUTINE FOR CALLING INPUT DATA AND INTEGRATION SUBROUTINE		GIDE 1
SUBROUTINE GUIDE		GIDE 2
	COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),	GIDE 3
1	NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)	GIDE 4
	EQUIVALENCE (NTEGER(48), NZERO)	GIDE 5
	IF (NZERO) 70, 10, 70	GIDE 6
10	DO 20 I = 1, 500	GIDE 7
20	P(I) = 0.0	GIDE 8
	DO 30 I = 1, 70	GIDE 9
	DYDX(I) = 0.0	GIDE 10
30	FIRSTY(I) = 0.0	GIDE 11
	DYDX(1) = 1.0	GIDE 12
	DO 40 I = 1, 200	GIDE 13
40	NTEGER (I) = 0	GIDE 14
	DO 50 I = 1, 40	GIDE 15
	DO 50 J = 1, 110	GIDE 16
50	TABL1(I,J) = 0.	GIDE 17
	DO 60 I = 1, 125	GIDE 18
60	TABL2(I,1) = 0.0	GIDE 19
70	DO 80 I = 501, 2000	GIDE 20
80	P(I) = 0.0	GIDE 21
	CALL INPUT	GIDE 22
	CALL NTGRTE	GIDE 23
	RETURN	GIDE 24
	END	GIDE 25
INPUT SUBROUTINE FOR DIFFERENTIAL EQUATION ROUTINE		DEIN 1
SUBROUTINE INPUT		DEIN 2
	CHARACTER *72 MISC1, MISC2	DEIN 3
	COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),	DEIN 4
1	NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)	DEIN 5
	DIMENSION NTB1(110), NTB21(1), NTB22(1)	DEIN 6
	DIMENSION GAMB(3,3)	DEIN 7
	EQUIVALENCE (P(164), VWIND)	DEIN 8
	EQUIVALENCE (P(187), VA), (P(188), VE), (P(189), VV),	DEIN 9
1	(P(190), PITCH), (P(191), ROLL)	DEIN 10
	EQUIVALENCE (P(571), GAMB)	DEIN 11
	EQUIVALENCE (NTEGER(1), IDENT), (NTEGER(2), NPF1),	DEIN 12
1	(NTEGER(3), NPF2), (NTEGER(4), NPF3), (NTEGER(5), NPF4),	DEIN 13
2	(NTEGER(6), NFIRST), (NTEGER(7), NT1), (NTEGER(8), NT2),	DEIN 14
3	(NTEGER(9), NTW1), (NTEGER(10), NTW2),	DEIN 15
4	(NTEGER(12), NTSKIP), (NTEGER(13), NEQ), (NTEGER(14), NMORE)	DEIN 16
	EQUIVALENCE (NTEGER(25), NVEVV)	DEIN 17

SOURCE DECK LISTING

	EQUIVALENCE (NTEGER(49), NPAGE), (NTEGER(56), NTB1),	DEIN 18
1	(NTEGER(166), NTB21), (NTEGER(167), NTB22)	DEIN 19
	NPAGE = 1	DEIN 20
	READ CONTROL INTEGERS INTO THE PROBLEM	DEIN 21
	READ (5,10,END=340) (NTEGER(I), I = 1, 14)	DEIN 22
10	FORMAT (BZ,14I5)	DEIN 23
	IF (NMORE) 20, 30, 20	DEIN 24
20	READ (5,10) (NTEGER(I), I = 15, NMORE)	DEIN 25
30	CALL PAGEHD	DEIN 26
	WRITE OUT RUN INFORMATION	DEIN 27
40	READ (5,'(A)') MISC1	DEIN 28
	READ (5,'(A)') MISC2	DEIN 29
	WRITE (6,'(A)') MISC1	DEIN 30
	WRITE (6,'(A)') MISC2	DEIN 31
	READ PARAMETERS INTO THE PROBLEM BY FORMAT 1	DEIN 32
	IF (NPF1) 60, 100, 60	DEIN 33
60	DO 90 I = 1, NPF1	DEIN 34
	READ (5,70) NP11, NP22, NP33	DEIN 35
70	FORMAT (BZ,3I5)	DEIN 36
	READ (5,80) (P(J), J = NP11, NP22, NP33)	DEIN 37
80	FORMAT (BZ,6E10.3)	DEIN 38
90	CONTINUE	DEIN 39
	READ PARAMETERS INTO THE PROBLEM BY FORMAT 2	DEIN 40
100	IF (NPF2) 110, 140, 110	DEIN 41
110	DO 130 J = 1, NPF2	DEIN 42
	READ (5,120) I, P(I)	DEIN 43
120	FORMAT (BZ,15,E15.7)	DEIN 44
130	CONTINUE	DEIN 45
	READ INTEGERS INTO THE PROBLEM BY FORMAT 3	DEIN 46
140	IF (NPF3) 150, 170, 150	DEIN 47
150	DO 160 I = 1, NPF3	DEIN 48
	READ (5,70) NNG11, NNG22, NNG33	DEIN 49
	READ (5,10) (NTEGER(J), J = NNG11, NNG22,	DEIN 50
1	NNG33)	DEIN 51
160	CONTINUE	DEIN 52
	READ INTEGERS INTO THE PROBLEM BY FORMAT 4	DEIN 53
170	IF (NPF4) 180, 210, 180	DEIN 54
180	DO 200 J = 1, NPF4	DEIN 55
	READ (5,190) I, NTEGER(I)	DEIN 56
190	FORMAT (BZ,15,115)	DEIN 57
200	CONTINUE	DEIN 58
	READ INITIAL CONDITIONS INTO THE PROBLEM	DEIN 59
210	IF (NFIRST) 220, 240, 220	DEIN 60
220	DO 231 J = 1, NFIRST	DEIN 61
230	READ (5,120) I, FIRSTY(I)	DEIN 62
231	CONTINUE	DEIN 63
	READ IN SINGLE TABLES	DEIN 64
240	IF (NT1) 250, 270, 250	DEIN 65
250	DO 260 J = 1, NT1	DEIN 66
	READ (5,190) I, NTB1(I)	DEIN 67
	NTAB = NTB1(I)	DEIN 68
	NTB = NTAB * 2	DEIN 69

SOURCE DECK LISTING

	NTABP1 = NTAB + 1	DEIN 70
	READ (5,80) (TABL1(K,I), K = 1, NTAB)	DEIN 71
	READ (5,80) (TABL1(K,I), K = NTABP1, NTB)	DEIN 72
260	CONTINUE	DEIN 73
	READ IN DOUBLE TABLES	DEIN 74
270	IF (NT2) 280, 300, 280	DEIN 75
280	DO 290 J = 1, NT2	DEIN 76
	READ (5,190) I, NTB21(I), NTB22(I)	DEIN 77
	NTB21I = NTB21(I)	DEIN 78
	NTP = NTB21(I) * NTB22(I)	DEIN 79
	NTT1P1 = NTB21(I) + 1	DEIN 80
	NNTT21 = NTB21(I) + NTB22(I)	DEIN 81
	NN21P1 = NNTT21 + 1	DEIN 82
	NF = NNTT21 + NTP	DEIN 83
	READ (5,80) (TABL2(K,I), K = 1, NTB21I)	DEIN 84
	READ (5,80) (TABL2(K,I), K = NTT1P1, NNTT21)	DEIN 85
	READ (5,80) (TABL2(K,I), K = NN21P1, NF)	DEIN 86
290	CONTINUE	DEIN 87
300	IF (NVEVV) 310, 320, 310	DEIN 88
310	VEI = VE * 20.268	DEIN 89
	VVI = VV * 12.0	DEIN 90
	FIRSTY(11) = ROLL	DEIN 91
	FIRSTY(12) = PITCH	DEIN 92
	PHIR = FIRSTY(11) / 57.29578	DEIN 93
	THETR = FIRSTY(12) / 57.29578	DEIN 94
	PSIR = FIRSTY(13) / 57.29578	DEIN 95
	SY11 = SIN(PHIR)	DEIN 96
	CY11 = COS(PHIR)	DEIN 97
	SY12 = SIN(THETR)	DEIN 98
	CY12 = COS(THETR)	DEIN 99
	SY13 = SIN(PSIR)	DEIN100
	CY13 = COS(PSIR)	DEIN101
	GAMB(1,1) = CY12 * CY13	DEIN102
	GAMB(3,1) = - SY12	DEIN103
	GAMB(1,2) = - SY13 * CY11 + SY11 * SY12 * CY13	DEIN104
	GAMB(3,2) = SY11 * CY12	DEIN105
	GAMB(1,3) = SY13 * SY11 + CY11 * SY12 * CY13	DEIN106
	GAMB(3,3) = CY11 * CY12	DEIN107
	FIRSTY(2) = GAMB(1,1) * VEI + GAMB(3,1) * VVI	DEIN108
	FIRSTY(3) = GAMB(1,2) * VEI + GAMB(3,2) * VVI	DEIN109
	FIRSTY(4) = GAMB(1,3) * VEI + GAMB(3,3) * VVI	DEIN110
	VAI = VA * 20.268	DEIN111
	GAMMAR = ASIN(VVI / VAI)	DEIN112
	VAX = VAI * COS(GAMMAR)	DEIN113
	VWIND = VAX - VEI	DEIN114
	ZERO THE Q AND SET Y TO INITIAL VALUES	DEIN115
320	DO 330 I = 1, NEQ	DEIN116
	Q(I) = 0.0	DEIN117
	Y(I) = FIRSTY(I)	DEIN118
330	CONTINUE	DEIN119
	Y(11) = Y(11) / 57.29578	DEIN120
	Y(12) = Y(12) / 57.29578	DEIN121

SOURCE DECK LISTING

```

      Y(13) = V(13) / 57.29578
PRINT INPUT DATA
      CALL INAD
      RETURN
      STOP
      END
SUBROUTINE FOR PRINTING INPUT DATA
      SUBROUTINE INAD
      COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),
1 NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)
      REAL MUR1, MUR2, MUR3, MW1, MW2, MW3, MUC, KBAR,
1 LHV, LHP, LLP, MUB1, MUB2, MUB3, KBF1, KBF2, KBF3, KBG1,
2 KBG2, KBG3, KBULK, MV1V1, MO1O1, MO1O2, MO1O3, MO2O1, MO2O2,
3 MO2O3, MO3O1, MO3O2, MO3O3, MV1S1, MV1S2, MV1S3, MV2S2,
4 MV2S3, MV3S1, MV3S2, MV3S3, MO1S2, MO1S3, MO2S1, MO2S2,
5 MO2S3, MO3S2, MO3S3, MQB11, MQB22, MQB33, MQB44, MQB55,
6 MQB66, MQB77, MQB88, KQB11, KQB22, KQB33, KQB44, KQB55,
7 KQB66, KQB77, KQB88, MOW1, MOW2, MOW3
      DIMENSION ZQG1(2), ZQG2(2), ZQG3(2)
      DIMENSION CIQA(8), CIQO(8)
      DIMENSION XN(3), XT1(3), XT2(3), XT3(3), XA1(3),
1 XA2(3), XA3(3), XH(3), XTH(3), XP(3), XS1(50), YS1(150),
2 XS2(57), YS2(171)
      DIMENSION NTB1(110), NTB21(1), NTB22(1)
      EQUIVALENCE (P(3), XN), (P(6), KBULK), (P(7), DENOIL)
      EQUIVALENCE (P(11), XT1), (P(14), XA1),
1 (P(17), WC13), (P(18), ETA1), (P(19), ZETA1), (P(20), MUB1),
2 (P(21), KBF1), (P(22), CBG1), (P(23), KBG1),
3 (P(24), VOLH01), (P(25), AH1), (P(26), AA1), (P(27), AO1),
4 (P(28), CD1), (P(29), VOLS01), (P(30), AHS1), (P(31), ANSE1),
5 (P(32), ANSC1), (P(33), CDS1), (P(34), RW1), (P(35), MV1S1),
6 (P(36), MV3S1), (P(37), MO2S1), (P(38), MOW1),
7 (P(40), ZQG1), (P(42), VW10), (P(43), AP1AVG), (P(44), MUR1),
8 (P(45), MW1), (P(46), CCOEF1)
      EQUIVALENCE (P(51), XT2), (P(54), XA2),
1 (P(57), WC23), (P(58), ETA2), (P(59), ZETA2), (P(60), MUB2),
2 (P(61), KBF2), (P(62), CBG2), (P(63), KBG2),
3 (P(64), VOLH02), (P(65), AH2), (P(66), AA2), (P(67), AO2),
4 (P(68), CD2), (P(69), VOLS02), (P(70), AHS2), (P(71), ANSE2),
5 (P(72), ANSC2), (P(73), CDS2), (P(74), RW2), (P(75), MV1S2),
6 (P(76), MV2S2), (P(77), MV3S2), (P(78), MO1S2),
7 (P(79), MO2S2), (P(80), MO3S2), (P(81), MOW2),
8 (P(83), ZQG2), (P(85), VW20), (P(86), AP2AVG), (P(87), MUR2),
9 (P(88), MW2), (P(89), CCOEF2)
      EQUIVALENCE (P(91), XT3), (P(94), XA3),
1 (P(97), WC33), (P(98), ETA3), (P(99), ZETA3), (P(100), MUB3),
2 (P(101), KBF3), (P(102), CBG3), (P(103), KBG3),
3 (P(104), VOLH03), (P(105), AH3), (P(106), AA3), (P(107), AO3),
4 (P(108), CD3), (P(109), VOLS03), (P(110), AHS3),
5 (P(111), ANSE3), (P(112), ANSC3), (P(113), CDS3),
6 (P(114), RW3), (P(115), MV1S3), (P(116), MV2S3),
7 (P(117), MV3S3), (P(118), MO1S3), (P(119), MO2S3),

```

340

SOURCE DECK LISTING

8	(P(120), MO3S3), (P(121), MOW3),	INAD 47
9	(P(123), ZQG3), (P(125), VW30), (P(126), AP3AVG),	INAD 48
1	(P(127), MUR3), (P(128), MW3), (P(129), CCOEF3)	INAD 49
	EQUIVALENCE (P(131), XH), (P(134), LHV),	INAD 50
1	(P(135), LLP), (P(136), PHIHK0), (P(137), LHP), (P(138), KBAR),	INAD 51
2	(P(139), DBAR), (P(140), BC), (P(141), VS), (P(142), VHPTC),	INAD 52
3	(P(143), MUC), (P(144), RUNMAX), (P(146), XTH), (P(149), SIGT),	INAD 53
4	(P(150), THRUST)	INAD 54
	EQUIVALENCE (P(151), MV1V1), (P(152), MO1O1),	INAD 55
1	(P(153), MO1O2), (P(154), MO1O3), (P(155), MO2O1),	INAD 56
2	(P(156), MO2O2), (P(157), MO2O3), (P(158), MO3O1),	INAD 57
3	(P(159), MO3O2), (P(160), MO3O3)	INAD 58
	EQUIVALENCE (P(161), XP), (P(164), VWIND),	INAD 59
1	(P(165), RHO), (P(166), S), (P(167), CBAR), (P(168), B),	INAD 60
2	(P(169), DELTA), (P(170), CXAL), (P(171), CZAL),	INAD 61
3	(P(172), CYST), (P(173), CXDL), (P(174), CZDL),	INAD 62
4	(P(175), CMAL), (P(176), CLBT), (P(177), CNBT),	INAD 63
5	(P(178), CMDL), (P(179), CX0), (P(180), CZ0), (P(181), CM0)	INAD 64
	EQUIVALENCE (P(182), ALFREF), (P(183), DELREF)	INAD 65
	EQUIVALENCE (P(187), VA), (P(188), VE),	INAD 66
1	(P(189), VV), (P(190), PITCH), (P(191), ROLL)	INAD 67
	EQUIVALENCE (P(209), CIQA), (P(225), CIQ0)	INAD 68
	EQUIVALENCE (P(401), MQB11), (P(402), MQB22),	INAD 69
1	(P(403), MQB33), (P(404), MQB44), (P(405), MQB55),	INAD 70
2	(P(406), MQB66), (P(407), MQB77), (P(408), MQB88)	INAD 71
	EQUIVALENCE (P(411), ZQB11), (P(412), ZQB22),	INAD 72
1	(P(413), ZQB33), (P(414), ZQB44), (P(415), ZQB55),	INAD 73
2	(P(416), ZQB66), (P(417), ZQB77), (P(418), ZQB88)	INAD 74
	EQUIVALENCE (P(421), KQB11), (P(422), KQB22),	INAD 75
1	(P(423), KQB33), (P(424), KQB44), (P(425), KQB55),	INAD 76
2	(P(426), KQB66), (P(427), KQB77), (P(428), KQB88)	INAD 77
	EQUIVALENCE (P(431), PBH11), (P(432), PBH21),	INAD 78
1	(P(433), PBH31), (P(434), PBH12), (P(435), PBH22),	INAD 79
2	(P(436), PBH32), (P(437), PBH13), (P(438), PBH23),	INAD 80
3	(P(439), PBH33), (P(440), PBH14), (P(441), PBH24),	INAD 81
4	(P(442), PBH34), (P(443), PBH15), (P(444), PBH25),	INAD 82
5	(P(445), PBH35), (P(446), PBH16), (P(447), PBH26),	INAD 83
6	(P(448), PBH36), (P(449), PBH17), (P(450), PBH27),	INAD 84
7	(P(451), PBH37), (P(452), PBH18), (P(453), PBH28),	INAD 85
8	(P(454), PBH38)	INAD 86
	EQUIVALENCE (NTEGER(9), NTW1), (NTEGER(10), NTW2)	INAD 87
	EQUIVALENCE (NTEGER(12), NTSKIP),	INAD 88
1	(NTEGER(25), NVEVV), (NTEGER(49), NPAGE), (NTEGER(50), NLINE),	INAD 89
2	(NTEGER(51), NSKIP), (NTEGER(53), NPRT)	INAD 90
	EQUIVALENCE (NTEGER(56), NTB1), (NTEGER(166), NTB21),	INAD 91
1	(NTEGER(167), NTB22)	INAD 92
	WRITE (6,10)	INAD 93
10	FORMAT (// 10X, 10HINPUT DATA)	INAD 94
	WRITE (6,20) P(1), P(2)	INAD 95
20	FORMAT (/ 10X, 23HINTEGRATION TIME STEP =, F7.4, 5H SEC.	INAD 96
1	/10X, 23HMAXIMUM RUN TIME =, F7.4, 5H SEC.)	INAD 97
	WRITE (6,30) XN(1), XN(2), XN(3), XT1(1), XT2(1),	INAD 98

SOURCE DECK LISTING

```

1  XT3(1), XT1(2), XT2(2), XT3(2), XT1(3), XT2(3), XT3(3)      INAD 99
30  FORMAT ( 10X, 8HXN(1) = , F12.4, 12H                      INAD100
1    / 10X, 8HXN(2) = , F12.4, 12H                          INAD101
2    / 10X, 8HXN(3) = , F12.4, 12H                          INAD102
3    / 10X, 8HXT1(1) = , F12.4, 12H                         INAD103
4    , 5X, 8HXT2(1) = , F12.4, 12H                         INAD104
5    , 5X, 8HXT3(1) = , F12.4, 12H                         INAD105
6    / 10X, 8HXT1(2) = , F12.4, 12H                         INAD106
7    , 5X, 8HXT2(2) = , F12.4, 12H                         INAD107
8    , 5X, 8HXT3(2) = , F12.4, 12H                         INAD108
9    / 10X, 8HXT1(3) = , F12.4, 12H                         INAD109
1    , 5X, 8HXT2(3) = , F12.4, 12H                         INAD110
2    , 5X, 8HXT3(3) = , F12.4, 12H                         INAD111
      WRITE (6,40) XA1(1), XA2(1), XA3(1), XA1(2), XA2(2),
1  XA3(2), XA1(3), XA2(3), XA3(3), WC13, WC23, WC33, VW10, VW20, INAD112
2  VW30, ETA1, ETA2, ETA3                                     INAD113
40  FORMAT ( 10X, 8HXA1(1) = , F12.4, 12H                      INAD114
1    , 5X, 8HXA2(1) = , F12.4, 12H                      INAD115
2    , 5X, 8HXA3(1) = , F12.4, 12H                      INAD116
3    / 10X, 8HXA1(2) = , F12.4, 12H                      INAD117
4    , 5X, 8HXA2(2) = , F12.4, 12H                      INAD118
5    , 5X, 8HXA3(2) = , F12.4, 12H                      INAD119
6    / 10X, 8HXA1(3) = , F12.4, 12H                      INAD120
7    , 5X, 8HXA2(3) = , F12.4, 12H                      INAD121
8    , 5X, 8HXA3(3) = , F12.4, 12H                      INAD122
9    / 10X, 8HWC13 = , F12.4, 12H                      INAD123
1    , 5X, 8HWC23 = , F12.4, 12H                      INAD124
2    , 5X, 8HWC33 = , F12.4, 12H                      INAD125
9    / 10X, 8HVV10 = , F12.4, 12H                      INAD126
9    , 5X, 8HVV20 = , F12.4, 12H                      INAD127
9    , 5X, 8HVV30 = , F12.4, 12H                      INAD128
3    / 10X, 8HETA1 = , F12.3, 12H                      INAD129
4    , 5X, 8HETA2 = , F12.3, 12H                      INAD130
5    , 5X, 8HETA3 = , F12.3, 12H                      INAD131
      WRITE (6,50) ZETA1, ZETA2, ZETA3, MUB1, MUB2, MUB3, INAD132
1  KBF1, KBF2, KBF3, CBG1, CBG2, CBG3, KBG1, KBG2, KBG3      INAD133
50  FORMAT ( 10X, 8HZETA1 = , F12.3, 12H                      INAD134
1    , 5X, 8HZETA2 = , F12.3, 12H                      INAD135
2    , 5X, 8HZETA3 = , F12.3, 12H                      INAD136
3    / 10X, 8HMUB1 = , F12.5, 12X                      INAD137
4    , 5X, 8HMUB2 = , F12.5, 12X                      INAD138
5    , 5X, 8HMUB3 = , F12.5, 12X                      INAD139
6    / 10X, 8HKB1 = , F12.2, 12H                      INAD140
7    , 5X, 8HKB2 = , F12.2, 12H                      INAD141
8    , 5X, 8HKB3 = , F12.2, 12H                      INAD142
9    / 10X, 8HCBG1 = , F12.3, 12H                      INAD143
1    , 5X, 8HCBG2 = , F12.3, 12H                      INAD144
2    , 5X, 8HCBG3 = , F12.3, 12H                      INAD145
3    / 10X, 8HKBG1 = , F12.3, 12H                      INAD146
4    , 5X, 8HKBG2 = , F12.3, 12H                      INAD147
5    , 5X, 8HKBG3 = , F12.3, 12H                      INAD148
      WRITE (6,60) VOLH01, VOLH02, VOLH03, AH1, AH2, AH3, INAD149
      VOLH01, VOLH02, VOLH03, AH1, AH2, AH3, INAD150

```

SOURCE DECK LISTING

```

1  AA1, AA2, AA3, AO1, AO2, AO3, CD1, CD2, CD3
60  FORMAT ( 10X, 8HVOLH01 =, F12.5, 12H      IN3      INAD151
1      , 5X, 8HVOLH02 =, F12.5, 12H      IN3      INAD152
2      , 5X, 8HVOLH03 =, F12.5, 12H      IN3      INAD153
3      / 10X, 8HAH1 =, F12.5, 12H      IN2      INAD154
4      , 5X, 8HAH2 =, F12.5, 12H      IN2      INAD155
5      , 5X, 8HAH3 =, F12.5, 12H      IN2      INAD156
6      / 10X, 8HAA1 =, F12.5, 12H      IN2      INAD157
7      , 5X, 8HAA2 =, F12.5, 12H      IN2      INAD158
8      , 5X, 8HAA3 =, F12.5, 12H      IN2      INAD159
9      / 10X, 8HAO1 =, F12.5, 12H      IN2      INAD160
1     , 5X, 8HAO2 =, F12.5, 12H      IN2      INAD161
2     , 5X, 8HAO3 =, F12.5, 12H      IN2      INAD162
3     / 10X, 8HCD1 =, F12.5, 12X      IN2      INAD163
4     , 5X, 8HCD2 =, F12.5, 12X      INAD164
5     , 5X, 8HCD3 =, F12.5, 12X      INAD165
        WRITE (6,70) VOLS01, VOLS02, VOLS03, AHS1, AHS2,
1  AHS3, ANSE1, ANSE2, ANSE3, ANSC1, ANSC2, ANSC3, CDS1, CDS2,
2  CDS3, RW1, RW2, RW3      INAD166
70  FORMAT ( 10X, 8HVOLS01 =, F12.5, 12H      IN3      INAD167
1      , 5X, 8HVOLS02 =, F12.5, 12H      IN3      INAD168
2      , 5X, 8HVOLS03 =, F12.5, 12H      IN3      INAD169
3      / 10X, 8HAHS1 =, F12.5, 12H      IN2      INAD170
4      , 5X, 8HAHS2 =, F12.5, 12H      IN2      INAD171
5      , 5X, 8HAHS3 =, F12.5, 12H      IN2      INAD172
6      / 10X, 8HANSE1 =, F12.7, 12H      IN2      INAD173
7      , 5X, 8HANSE2 =, F12.7, 12H      IN2      INAD174
8      , 5X, 8HANSE3 =, F12.7, 12H      IN2      INAD175
9      / 10X, 8HANSC1 =, F12.7, 12H      IN2      INAD176
1     , 5X, 8HANSC2 =, F12.7, 12H      IN2      INAD177
2     , 5X, 8HANSC3 =, F12.7, 12H      IN2      INAD178
3     / 10X, 8HCDS1 =, F12.5, 12X      INAD179
4     , 5X, 8HCDS2 =, F12.5, 12X      INAD180
5     , 5X, 8HCDS3 =, F12.5, 12X      INAD181
6     / 10X, 8HRW1 =, F12.3, 12H      INAD182
7     , 5X, 8HRW2 =, F12.3, 12H      INAD183
8     , 5X, 8HRW3 =, F12.3, 12H      INAD184
        WRITE (6,80) AP1AVG, AP2AVG, AP3AVG, MUR1, MUR2,
1  MUR3, MW1, MW2, MW3, CCOEF1, CCOEF2, CCOEF3      INAD185
80  FORMAT ( 10X, 8HAP1AVG =, F12.4, 12H      IN2      INAD186
1      , 5X, 8HAP2AVG =, F12.4, 12H      IN2      INAD187
2      , 5X, 8HAP3AVG =, F12.4, 12H      IN2      INAD188
3      / 10X, 8HMUR1 =, F12.4, 12X      INAD189
4      , 5X, 8HMUR2 =, F12.4, 12X      INAD190
5      , 5X, 8HMUR3 =, F12.4, 12X      INAD191
6      / 10X, 8HMW1 =, F12.4, 12H      LB SEC2/IN      INAD192
7      , 5X, 8HMW2 =, F12.4, 12H      LB SEC2/IN      INAD193
8      , 5X, 8HMW3 =, F12.4, 12H      LB SEC2/IN      INAD194
9      / 10X, 8HCCOEF1 =, F12.4, 12X      INAD195
1     , 5X, 8HCCOEF2 =, F12.4, 12X      INAD196
2     , 5X, 8HCCOEF3 =, F12.4, 12X      INAD197
        WRITE (6,90) MV1S1, MV1S2, MV1S3, MV2S2, MV2S3,
1                                     INAD198
2                                     INAD199
                                     INAD200
                                     INAD201
                                     INAD202

```

SOURCE DECK LISTING

1	MV3S1, MV3S2, MV3S3		
90	FORMAT (	10X, 8HMOV1S1 = , F12.6, 12H LB SEC2/IN	INAD203
1		, 5X, 8HMOV1S2 = , F12.6, 12H LB SEC2/IN	INAD204
2		, 5X, 8HMOV1S3 = , F12.6, 12H LB SEC2/IN	INAD205
3	/	47X, 8HMOV2S2 = , F12.6, 12H LB SEC2/IN	INAD206
4		, 5X, 8HMOV2S3 = , F12.6, 12H LB SEC2/IN	INAD207
5	/	10X, 8HMOV3S1 = , F12.6, 12H LB SEC2/IN	INAD208
6		, 5X, 8HMOV3S2 = , F12.6, 12H LB SEC2/IN	INAD209
7		, 5X, 8HMOV3S3 = , F12.6, 12H LB SEC2/IN)	INAD210
	WRITE (6,100) MO1S2, MO1S3, MO2S1, MO2S2,		INAD211
1	MO2S3, MO3S2, MO3S3		INAD212
100	FORMAT (	47X, 8HMO1S2 = , F12.5, 12H LB SEC2	INAD213
1		, 5X, 8HMO1S3 = , F12.5, 12H LB SEC2	INAD214
2	/	10X, 8HMO2S1 = , F12.5, 12H LB SEC2	INAD215
3		, 5X, 8HMO2S2 = , F12.5, 12H LB SEC2	INAD216
4		, 5X, 8HMO2S3 = , F12.5, 12H LB SEC2	INAD217
5	/	47X, 8HMO3S2 = , F12.5, 12H LB SEC2	INAD218
6		, 5X, 8HMO3S3 = , F12.5, 12H LB SEC2)	INAD219
	WRITE (6,110) MOW1, MOW2, MOW3,		INAD220
1	ZQG1(1), ZQG2(1), ZQG3(1), ZQG1(2), ZQG2(2), ZQG3(2)		INAD221
110	FORMAT (	10X, 8HMOW1 = , F12.4, 12H LB IN SEC2	INAD222
1		, 5X, 8HMOW2 = , F12.4, 12H LB IN SEC2	INAD223
2		, 5X, 8HMOW3 = , F12.4, 12H LB IN SEC2	INAD224
3	/	10X, 8HZQG111 = , F12.4, 12X	INAD225
4		, 5X, 8HZQG211 = , F12.4, 12X	INAD226
5		, 5X, 8HZQG311 = , F12.4, 12X	INAD227
6	/	10X, 8HZQG122 = , F12.4, 12X	INAD228
7		, 5X, 8HZQG222 = , F12.4, 12X	INAD229
8		, 5X, 8HZQG322 = , F12.4, 12X)	INAD230
	NPAGE = NPAGE + 1		INAD231
	CALL PAGEHD		INAD232
	RUNMXF = RUNMAX / 12.0		INAD233
	WRITE (6,120) KBULK, DENOIL, XH(1), XH(2), XH(3),		INAD234
1	LHV, LLP, LHP, PHIHK0, KBAR, DBAR, BC, MUC, VS		INAD235
120	FORMAT (	10X, 8HKBULK = , F12.2, 12H LB/IN2	INAD236
1		, 5X, 8HDENOIL = , F12.8, 12H LB SEC2/IN4	INAD237
2	/	10X, 8HXXH(1) = , F12.4, 12H IN	INAD238
3	/	10X, 8HXXH(2) = , F12.4, 12H IN	INAD239
4	/	10X, 8HXXH(3) = , F12.4, 12H IN	INAD240
5	/	10X, 8HLHV = , F12.4, 12H IN	INAD241
6		, 5X, 8HLLP = , F12.4, 12H IN	INAD242
7		, 5X, 8HLHP = , F12.4, 12H IN	INAD243
8	/	10X, 8HPHIHK0 = , F12.3, 12H DEG	INAD244
9		, 5X, 8HKBAR = , F12.2, 12H IN	INAD245
1		, 5X, 8HDBAR = , F12.2, 12H IN	INAD246
2	/	10X, 8HBC = , F12.2, 12H IN	INAD247
3		, 5X, 8HMUC = , F12.2, 12X	INAD248
4		, 5X, 8HVS = , F12.3, 12H IN)	INAD249
	WRITE (6,130) VHPTC, RUNMXF, XTH(1), XTH(2),		INAD250
1	XTH(3), SIGT, THRUST		INAD251
130	FORMAT (	10X, 8HVHPTC = , F12.3, 12H IN	INAD252
1		, 5X, 8HRUNMXF = , F12.2, 12H FT	INAD253
			INAD254

SOURCE DECK LISTING

```

2          / 10X, 8HXTH(1) = , F12.3, 12H          IN          INAD255
3          / 10X, 8HXTH(2) = , F12.3, 12H          IN          INAD256
4          / 10X, 8HXTH(3) = , F12.3, 12H          IN          INAD257
5          / 10X, 8HSIGT = , F12.4, 12H          DEG          INAD258
6          , 5X, 8HTHRUST = , F12.1, 12H          LB)          INAD259
          WEIGHT = MV1V1 * 386.09          INAD260
          WRITE (6,140) WEIGHT, MV1V1, MO101, MO102, MO103,
140 1      MO201, MO202, MO203, MO301, MO302, MO303          INAD261
          FORMAT ( 10X, 8HWEIGHT = , F12.2, 12H          LB          INAD262
1      , 5X, 8HMOV1V1 = , F12.4, 12H          LB SEC2/IN          INAD263
2      / 10X, 8HMO101 = , F12.2, 12H          LB IN SEC2          INAD264
3      , 5X, 8HMO102 = , F12.2, 12H          LB IN SEC2          INAD265
4      , 5X, 8HMO103 = , F12.2, 12H          LB IN SEC2          INAD266
5      / 10X, 8HMO201 = , F12.2, 12H          LB IN SEC2          INAD267
6      , 5X, 8HMO202 = , F12.2, 12H          LB IN SEC2          INAD268
7      , 5X, 8HMO203 = , F12.2, 12H          LB IN SEC2          INAD269
8      / 10X, 8HMO301 = , F12.2, 12H          LB IN SEC2          INAD270
9      , 5X, 8HMO302 = , F12.2, 12H          LB IN SEC2          INAD271
1     , 5X, 8HMO303 = , F12.2, 12H          LB IN SEC2          INAD272
1     , 5X, 8HMO303 = , F12.2, 12H          LB IN SEC2          INAD273
          WRITE (6,150) XP(1), XP(2), XP(3), VWIND, RHO,
150 1      S, CBAR, B, DELTA          INAD274
          FORMAT ( 10X, 8HXP(1) = , F12.3, 12H          IN          INAD275
1      , 5X, 8HXP(2) = , F12.3, 12H          IN          INAD276
2      , 5X, 8HXP(3) = , F12.3, 12H          IN          INAD277
3      / 10X, 8HVWIND = , F12.2, 12H          IN/SEC          INAD278
4      , 5X, 8HRHO = , E12.5, 12H          LB SEC2/IN4          INAD279
5      / 10X, 8HS = , F12.4, 12H          IN2          INAD280
6      , 5X, 8HCBAR = , F12.4, 12H          IN          INAD281
7      , 5X, 8HCBAR = , F12.4, 12H          IN          INAD282
8      / 10X, 8HDELTA = , F12.2, 12H          DEG          INAD283
          WRITE (6,160) CXAL, CZAL, CYBT, CXDL, CZDL, CMAL,
160 1      CLBT, CNBT, CMDL, CX0, CZ0, CM0          INAD284
          FORMAT ( 10X, 8HCXAL = , F12.4, 12H          1/DEG          INAD285
1      , 5X, 8HCZAL = , F12.4, 12H          1/DEG          INAD286
2      , 5X, 8HCYBT = , F12.4, 12H          1/DEG          INAD287
3      / 10X, 8HCXDL = , F12.4, 12H          1/DEG          INAD288
4      , 5X, 8HCZDL = , F12.4, 12H          1/DEG          INAD289
5      , 5X, 8HCMAL = , F12.4, 12H          1/DEG          INAD290
6      / 10X, 8HCLBT = , F12.4, 12H          1/DEG          INAD291
7      , 5X, 8HCNBT = , F12.4, 12H          1/DEG          INAD292
8      , 5X, 8HCMDL = , F12.4, 12H          1/DEG          INAD293
9      / 10X, 8HCX0 = , F12.4, 12X          1/DEG          INAD294
1     , 5X, 8HCZ0 = , F12.4, 12X          1/DEG          INAD295
2     , 5X, 8HCM0 = , F12.4, 12X          1/DEG          INAD296
          WRITE (6,162) CIQA(1), CIQ0(1), CIQA(2), CIQ0(2),
162 1      CIQA(3), CIQ0(3), CIQA(4), CIQ0(4), CIQA(5), CIQ0(5),          INAD297
1      CIQA(6), CIQ0(6), CIQA(7), CIQ0(7), CIQA(8), CIQ0(8),          INAD298
          FORMAT ( 10X, 8HCIQA1 = , F12.8, 12H          1/DEG          INAD299
1      , 5X, 8HCIQ01 = , F12.8, 12X          1/DEG          INAD300
2      / 10X, 8HCIQA2 = , F12.8, 12H          1/DEG          INAD301
3      , 5X, 8HCIQ02 = , F12.8, 12X          1/DEG          INAD302
4      / 10X, 8HCIQA3 = , F12.8, 12H          1/DEG          INAD303
          INAD304
          INAD305
          INAD306

```

SOURCE DECK LISTING

5	, 5X, 8HCIQ03 = , F12.8, 12X	INAD307
6	/ 10X, 8HCIQA4 = , F12.8, 12H 1/DEG	INAD308
7	, 5X, 8HCIQ04 = , F12.8, 12X	INAD309
8	/ 10X, 8HCIQA5 = , F12.8, 12H 1/DEG	INAD310
9	, 5X, 8HCIQ05 = , F12.8, 12X	INAD311
1	/ 10X, 8HCIQA6 = , F12.8, 12H 1/DEG	INAD312
2	, 5X, 8HCIQ06 = , F12.8, 12X	INAD313
3	/ 10X, 8HCIQA7 = , F12.8, 12H 1/DEG	INAD314
4	, 5X, 8HCIQ07 = , F12.8, 12X	INAD315
5	/ 10X, 8HCIQA8 = , F12.8, 12H 1/DEG	INAD316
6	, 5X, 8HCIQ08 = , F12.8, 12X)	INAD317
	WRITE (6,164) ALFREF, DELREF	INAD318
164	FORMAT (10X, 8HALFREF = , F12.4, 12H DEG	INAD319
1	, 5X, 8HDELREF = , F12.4, 12H DEG)	INAD320
	WRITE (6,170) MQB11, ZQB11, KQB11, MQB22, ZQB22,	INAD321
1	KQB22, MQB33, ZQB33, KQB33, MQB44, ZQB44, KQB44	INAD322
170	FORMAT (10X, 8HMQB11 = , F12.4, 12H LB SEC2/IN	INAD323
1	, 5X, 8HZQB11 = , F12.3, 12H	INAD324
2	, 5X, 8HKQB11 = , F12.2, 12H LB/IN	INAD325
3	/ 10X, 8HMQB22 = , F12.4, 12H LB SEC2/IN	INAD326
4	, 5X, 8HZQB22 = , F12.3, 12X	INAD327
5	, 5X, 8HKQB22 = , F12.2, 12H LB/IN	INAD328
6	/ 10X, 8HMQB33 = , F12.4, 12H LB SEC2/IN	INAD329
7	, 5X, 8HZQB33 = , F12.3, 12X	INAD330
8	, 5X, 8HKQB33 = , F12.2, 12H LB/IN	INAD331
9	/ 10X, 8HMQB44 = , F12.4, 12H LB SEC2/IN	INAD332
1	, 5X, 8HZQB44 = , F12.3, 12X	INAD333
2	, 5X, 8HKQB44 = , F12.2, 12H LB/IN)	INAD334
	WRITE (6,180) MQB55, ZQB55, KQB55, MQB66, ZQB66,	INAD335
1	KQB66, MQB77, ZQB77, KQB77, MQB88, ZQB88, KQB88	INAD336
180	FORMAT (10X, 8HMQB55 = , F12.4, 12H LB SEC2/IN	INAD337
1	, 5X, 8HZQB55 = , F12.3, 12H	INAD338
2	, 5X, 8HKQB55 = , F12.2, 12H LB/IN	INAD339
3	/ 10X, 8HMQB66 = , F12.4, 12H LB SEC2/IN	INAD340
4	, 5X, 8HZQB66 = , F12.3, 12X	INAD341
5	, 5X, 8HKQB66 = , F12.2, 12H LB/IN	INAD342
6	/ 10X, 8HMQB77 = , F12.4, 12H LB SEC2/IN	INAD343
7	, 5X, 8HZQB77 = , F12.3, 12H	INAD344
8	, 5X, 8HKQB77 = , F12.2, 12H LB/IN	INAD345
9	/ 10X, 8HMQB88 = , F12.4, 12H LB SEC2/IN	INAD346
1	, 5X, 8HZQB88 = , F12.3, 12X	INAD347
2	, 5X, 8HKQB88 = , F12.2, 12H LB/IN)	INAD348
	WRITE (6,190) PBH11, PBH21, PBH31, PBH12, PBH22,	INAD349
1	PBH32, PBH13, PBH23, PBH33, PBH14, PBH24, PBH34	INAD350
190	FORMAT (10X, 8HPBH11 = , F12.5, 12X	INAD351
1	, 5X, 8HPBH21 = , F12.5, 12X	INAD352
2	, 5X, 8HPBH31 = , F12.5, 12X	INAD353
3	/ 10X, 8HPBH12 = , F12.5, 12X	INAD354
4	, 5X, 8HPBH22 = , F12.5, 12X	INAD355
5	, 5X, 8HPBH32 = , F12.5, 12X	INAD356
6	/ 10X, 8HPBH13 = , F12.5, 12X	INAD357
7	, 5X, 8HPBH23 = , F12.5, 12X	INAD358

SOURCE DECK LISTING

8	, 5X, 8HPBH33 = , F12.5, 12X	INAD359
9	/ 10X, 8HPBH14 = , F12.5, 12X	INAD360
1	, 5X, 8HPBH24 = , F12.5, 12X	INAD361
2	, 5X, 8HPBH34 = , F12.5, 12X)	INAD362
	WRITE (6,200) PBH15, PBH25, PBH35, PBH16, PBH26,	INAD363
1	PBH36, PBH17, PBH27, PBH37, PBH18, PBH28, PBH38	INAD364
200	FORMAT (10X, 8HPBH15 = , F12.5, 12X	INAD365
1	, 5X, 8HPBH25 = , F12.5, 12X	INAD366
2	, 5X, 8HPBH35 = , F12.5, 12X	INAD367
3	/ 10X, 8HPBH16 = , F12.5, 12X	INAD368
4	, 5X, 8HPBH26 = , F12.5, 12X	INAD369
5	, 5X, 8HPBH36 = , F12.5, 12X	INAD370
6	/ 10X, 8HPBH17 = , F12.5, 12X	INAD371
7	, 5X, 8HPBH27 = , F12.5, 12X	INAD372
8	, 5X, 8HPBH37 = , F12.5, 12X	INAD373
9	/ 10X, 8HPBH18 = , F12.5, 12X	INAD374
1	, 5X, 8HPBH28 = , F12.5, 12X	INAD375
2	, 5X, 8HPBH38 = , F12.5, 12X)	INAD376
	IF (NVEVV) 210, 230, 210	INAD377
210	WRITE (6,220) VA, VE, VV, PITCH, ROLL	INAD378
220	FORMAT (//10X, 18HINITIAL CONDITIONS	INAD379
1	//10X, 8HVA = , F12.4, 12H	INAD380
2	/ 10X, 8HVE = , F12.4, 12H	INAD381
3	/ 10X, 8HVV = , F12.4, 12H	INAD382
4	/ 10X, 8HPITCH = , F12.4, 12H	INAD383
5	/ 10X, 8HROLL = , F12.4, 12H	INAD384
230	NPAGE = NPAGE + 1	INAD385
	CALL PAGEHD	INAD386
	DATA XS1 / 2HS1, 2HS1, 2HS1, 2HS1, 3HVV1,	INAD387
1	2HS1, 2HS1, 4HSPR1, 2HS1, 2HS1, 2HS1, 2HS1, 2HS1, 2HS1,	INAD388
2	2HS1, 2HS1, 2HS1, 2HS1, 2HS1, 2HS1, 2HS1, 2HS1, 2HS1,	INAD389
3	2HS1, 2HS1, 2HS1, 2HS1, 2HS1, 2HS1, 2HS1, 2HS1, 2HS1,	INAD390
4	2HS1, 2HS1, 2HS1, 2HS1, 2HS1, 2HS1, 2HS1, 2HS1, 2HS1,	INAD391
5	2HS1, 2HS1, 2HS1, 2HS1, 2HS1 /	INAD392
	DATA YS1(1), YS1(2), YS1(3), YS1(4), YS1(5), YS1(6),	INAD393
1	YS1(7), YS1(8), YS1(9), YS1(10), YS1(11), YS1(12), YS1(13),	INAD394
2	YS1(14), YS1(15), YS1(16), YS1(17), YS1(18), YS1(19), YS1(20),	INAD395
3	YS1(21), YS1(22), YS1(23), YS1(24), YS1(25), YS1(26), YS1(27),	INAD396
4	YS1(28), YS1(29), YS1(30), YS1(31), YS1(32), YS1(33), YS1(34),	INAD397
5	YS1(35), YS1(36), YS1(37), YS1(38), YS1(39), YS1(40), YS1(41),	INAD398
6	YS1(42), YS1(43), YS1(44), YS1(45), YS1(46), YS1(47), YS1(48),	INAD399
7	YS1(49), YS1(50), YS1(51), YS1(52), YS1(53), YS1(54), YS1(55),	INAD400
8	YS1(56), YS1(57), YS1(58), YS1(59), YS1(60) /	INAD401
1	4HXIA1, 4H(1), 4H , 4HXIA1, 4H(3),	INAD402
1	4H , 4HXIA1, 4HD(1), 4H , 4HXIA1, 4HD(3), 4H ,	INAD403
2	4HFG1(, 4H3) , 4H , 4HAP1 , 4H , 4H ,	INAD404
3	4HPA1 , 4H , 4H , 4HMU1 , 4H , 4H ,	INAD405
4	4HMS1S, 4H1 , 4H , 4HBU1(, 4H1) , 4H ,	INAD406
2	4HBU1(, 4H2) , 4H , 4HBU1(, 4H3) , 4H ,	INAD407
6	4HBL1(, 4H1) , 4H , 4HBL1(, 4H2) , 4H ,	INAD408
7	4HBL1(, 4H3) , 4H , 4HMQG1, 4H(1,1, 4H) ,	INAD409
8	4HMQG1, 4H(2,2, 4H) , 4HMQG1, 4H(1,1, 4H) ,	INAD410

SOURCE DECK LISTING

```

9 4HKQG1, 4H(2,2, 4H) , 4HPGA1, 4H(1,1, 4H) / INAD411
    DATA YS1(61), YS1(62), YS1(63), YS1(64), YS1(65), INAD412
1  YS1(66), YS1(67), YS1(68), YS1(69), YS1(70), YS1(71), YS1(72), INAD413
2  YS1(73), YS1(74), YS1(75), YS1(76), YS1(77), YS1(78), YS1(79), INAD414
3  YS1(80), YS1(81), YS1(82), YS1(83), YS1(84), YS1(85), YS1(86), INAD415
4  YS1(87), YS1(88), YS1(89), YS1(90), YS1(91), YS1(92), YS1(93), INAD416
5  YS1(94), YS1(95), YS1(96), YS1(97), YS1(98), YS1(99), YS1(100), INAD417
6  YS1(101), YS1(102), YS1(103), YS1(104), YS1(105), YS1(106), INAD418
7  YS1(107), YS1(108), YS1(109), YS1(110), YS1(111), YS1(112), INAD419
8  YS1(113), YS1(114), YS1(115), YS1(116), YS1(117), YS1(118), INAD420
9  YS1(119), YS1(120), YS1(121), YS1(122), YS1(123), YS1(124)/ INAD421
1  4HPGA1, 4H(2,1, 4H) , 4HPGA1, 4H(3,1, 4H) , 4HPGA1, 4H(1,2, INAD422
2  4H) , 4HPGA1, 4H(2,2, 4H) , 4HPGA1, 4H(3,2, 4H) , 4HMOG1, INAD423
3  4H , 4H , 4HPBA1, 4H(1,1, 4H) , 4HPBA1, 4H(2,1, 4H) , INAD424
4  4HPBA1, 4H(3,1, 4H) , 4HPBA1, 4H(1,2, 4H) , 4HPBA1, 4H(2,2, INAD425
5  4H) , 4HPBA1, 4H(3,2, 4H) , 4HPBA1, 4H(1,3, 4H) , 4HPBA1, INAD426
6  4H(2,3, 4H) , 4HPBA1, 4H(3,3, 4H) , 4HPBA1, 4H(1,4, 4H) , INAD427
7  4HPBA1, 4H(2,4, 4H) , 4HPBA1, 4H(3,4, 4H) , 4HPBA1, 4H(1,5, INAD428
8  4H) , 4HPBA1, 4H(2,5, 4H) , 4HPBA1, 4H(3,5, 4H) , 4HPBA1/ INAD429
    DATA YS1(125), YS1(126), YS1(127), YS1(128), INAD430
1  YS1(129), YS1(130), YS1(131), YS1(132), YS1(133), YS1(134), INAD431
2  YS1(135), YS1(136), YS1(137), YS1(138), YS1(139), YS1(140), INAD432
3  YS1(141), YS1(142), YS1(143), YS1(144), YS1(145), YS1(146), INAD433
4  YS1(147), YS1(148), YS1(149), YS1(150)/ INAD434
1  4H(1,6, 4H) , 4HPBA1, 4H(2,6, 4H) , 4HPBA1, 4H(3,6, 4H) , INAD435
2  4HPBA1, 4H(1,7, 4H) , 4HPBA1, 4H(2,7, 4H) , 4HPBA1, 4H(3,7, INAD436
3  4H) , 4HPBA1, 4H(1,8, 4H) , 4HPBA1, 4H(2,8, 4H) , 4HPBA1, INAD437
4  4H(3,8, 4H) / INAD438
    DATA XS2 / 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, INAD439
1  2HS2, 3HVW2, 2HS2, 2HS2, 4HSPR2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, INAD440
2  2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, INAD441
3  2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, INAD442
4  2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, INAD443
5  2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS2, 2HS1, 2HS1, 2HS2, 2HS2, INAD444
6  2HS3, 2HS3 / INAD445
    DATA YS2(1), YS2(2), YS2(3), YS2(4), YS2(5), YS2(6), INAD446
1  YS2(7), YS2(8), YS2(9), YS2(10), YS2(11), YS2(12), YS2(13), INAD447
2  YS2(14), YS2(15), YS2(16), YS2(17), YS2(18), YS2(19), YS2(20), INAD448
3  YS2(21), YS2(22), YS2(23), YS2(24), YS2(25), YS2(26), YS2(27), INAD449
4  YS2(28), YS2(29), YS2(30), YS2(31), YS2(32), YS2(33), YS2(34), INAD450
5  YS2(35), YS2(36), YS2(37), YS2(38), YS2(39), YS2(40), YS2(41), INAD451
6  YS2(42), YS2(43), YS2(44), YS2(45), YS2(46), YS2(47), YS2(48), INAD452
7  YS2(49), YS2(50), YS2(51), YS2(52), YS2(53), YS2(54), YS2(55), INAD453
8  YS2(56), YS2(57), YS2(58), YS2(59), YS2(60) / INAD454
1  4HXIA2, 4H(1) , 4H , 4HXIA2, 4H(2) , 4H , 4HXIA2, 4H(3) , INAD455
2  4H , 4HXIA2, 4HD(1) , 4H , 4HXIA2, 4HD(2) , 4H , 4HXIA2, INAD456
3  4HD(3) , 4H , 4HFG2( , 4H3) , 4H , 4HAP2 , 4H , 4H , INAD457
4  4HPA2 , 4H , 4H , 4HMOG2 , 4H , 4H , 4HMS2S, 4H2 , INAD458
5  4H , 4HBU2( , 4H1) , 4H , 4HBU2( , 4H2) , 4H , 4HBU2( , INAD459
6  4H3) , 4H , 4HBL2( , 4H1) , 4H , 4HBL2( , 4H2) , 4H , INAD460
7  4HBL2( , 4H3) , 4H , 4HMOG2, 4H(1,1, 4H) , 4HMOG2, 4H(2,2, INAD461
8  4H) , 4HKQG2, 4H(1,1, 4H) / INAD462

```

SOURCE DECK LISTING

```

DATA YS2(61), YS2(62), YS2(63), YS2(64), YS2(65), INAD463
1 YS2(66), YS2(67), YS2(68), YS2(69), YS2(70), YS2(71), YS2(72), INAD464
2 YS2(73), YS2(74), YS2(75), YS2(76), YS2(77), YS2(78), YS2(79), INAD465
3 YS2(80), YS2(81), YS2(82), YS2(83), YS2(84), YS2(85), YS2(86), INAD466
4 YS2(87), YS2(88), YS2(89), YS2(90), YS2(91), YS2(92), YS2(93), INAD467
5 YS2(94), YS2(95), YS2(96), YS2(97), YS2(98), YS2(99), YS2(100), INAD468
6 YS2(101), YS2(102), YS2(103), YS2(104), YS2(105), YS2(106), INAD469
7 YS2(107), YS2(108), YS2(109), YS2(110), YS2(111), YS2(112), INAD470
8 YS2(113), YS2(114), YS2(115), YS2(116), YS2(117), YS2(118), INAD471
9 YS2(119), YS2(120), YS2(121), YS2(122), YS2(123), YS2(124), INAD472
1 4HKQG2, 4H(2,2, 4H) , 4HPGA2, 4H(1,1, 4H) , 4HPGA2, 4H(2,1, INAD473
2 4H) , 4HPGA2, 4H(3,1, 4H) , 4HPGA2, 4H(1,2, 4H) , 4HPGA2, INAD474
3 4H(2,2, 4H) , 4HPGA2, 4H(3,2, 4H) , 4HPBA2, 4H(1,1, 4H) , INAD475
4 4HPBA2, 4H(2,1, 4H) , 4HPBA2, 4H(3,1, 4H) , 4HPBA2, 4H(1,2, INAD476
5 4H) , 4HPBA2, 4H(2,2, 4H) , 4HPBA2, 4H(3,2, 4H) , 4HPBA2, INAD477
6 4H(1,3, 4H) , 4HPBA2, 4H(2,3, 4H) , 4HPBA2, 4H(3,3, 4H) , INAD478
7 4HPBA2, 4H(1,4, 4H) , 4HPBA2, 4H(2,4, 4H) , 4HPBA2, 4H(3,4, INAD479
8 4H) , 4HPBA2, 4H(1,5, 4H) , 4HPBA2, 4H(2,5, 4H) , 4HPBA2, INAD480
DATA YS2(125), YS2(126), YS2(127), YS2(128), INAD481
1 YS2(129), YS2(130), YS2(131), YS2(132), YS2(133), YS2(134), INAD482
2 YS2(135), YS2(136), YS2(137), YS2(138), YS2(139), YS2(140), INAD483
3 YS2(141), YS2(142), YS2(143), YS2(144), YS2(145), YS2(146), INAD484
4 YS2(147), YS2(148), YS2(149), YS2(150), YS2(151), YS2(152), INAD485
5 YS2(153) / INAD486
1 4H(3,5, 4H) , 4HPBA2, 4H(1,6, 4H) , 4HPBA2, 4H(2,6, 4H) , INAD487
2 4HPBA2, 4H(3,6, 4H) , 4HPBA2, 4H(1,7, 4H) , 4HPBA2, 4H(2,7, INAD488
3 4H) , 4HPBA2, 4H(3,7, 4H) , 4HPBA2, 4H(1,8, 4H) , 4HPBA2, INAD489
4 4H(2,8, 4H) , 4HPBA2, 4H(3,8, 4H) / INAD490
DATA YS2(154), YS2(155), YS2(156), YS2(157), INAD491
1 YS2(158), YS2(159), YS2(160), YS2(161), YS2(162), YS2(163), INAD492
2 YS2(164), YS2(165), YS2(166), YS2(167), YS2(168), YS2(169), INAD493
3 YS2(170), YS2(171) / INAD494
4 4HMS1Q, 4HG(1), 4H , 4HMS1Q, 4HG(2), 4H , 4HMS2Q, 4HG(1), INAD495
5 4H , 4HMS2Q, 4HG(2), 4H , 4HMS3Q, 4HG(1), 4H , 4HMS3Q, INAD496
6 4HG(2), 4H / INAD497
NTCNT = 0 INAD498
IF (NTW1) 240, 360, 240 INAD499
DO 350 I = 1, NTW1 INAD500
IF (NTB1(I)) 250, 350, 250 INAD501
250 NT1 = NTB1(I) INAD502
NT1P1 = NT1 + 1 INAD503
NF = NT1 * 2 INAD504
IF (I - 110) 280, 260, 280 INAD505
260 WRITE (6,270) INAD506
270 FORMAT ( / 10X, 53HSINGLE TABLE 110 - FH1NON VS INAD507
1. RUNNON ) INAD508
GO TO 320 INAD509
280 IF (I - 50) 290, 290, 310 INAD510
290 J = 3 * I - 2 INAD511
K = J + 1 INAD512
L = J + 2 INAD513
WRITE (6,300) I, YS1(J), YS1(K), YS1(L), XS1(I) INAD514

```

SOURCE DECK LISTING

300	FORMAT (/ 10X, 16HSINGLE TABLE NO., 15, 5H - , 2X, 3A4, 2X,	INAD515
1	3HVS., 3X, A4)	INAD516
	GO TO 320	INAD517
310	LL = I - 50	INAD518
	J = 3 * LL - 2	INAD519
	K = J + 1	INAD520
	L = J + 2	INAD521
	WRITE (6,300) I, YS2(J), YS2(K), YS2(L), XS2(LL)	INAD522
320	WRITE (6,330) (TABL1(J,I), J = 1, NT1)	INAD523
	WRITE (6,330) (TABL1(J,I), J = NT1P1, NF)	INAD524
330	FORMAT (8E13.5)	INAD525
	NTCNT = NF / 8 + 3 + NTCNT	INAD526
	IF (NTCNT - 47) 350, 340, 340	INAD527
340	NPAGE = NPAGE + 1	INAD528
	CALL PAGEHD	INAD529
	NTCNT = 0	INAD530
350	CONTINUE	INAD531
360	IF (NTW2) 370, 400, 370	INAD532
370	IF (NTB21(1)) 380, 400, 380	INAD533
380	NTT1 = NTB21(1)	INAD534
	NTT2 = NTB22(1)	INAD535
	NTP = NTT1 * NTT2	INAD536
	NTT1P1 = NTT1 + 1	INAD537
	NNTT12 = NTT1 + NTT2	INAD538
	NT12P1 = NNTT12 + 1	INAD539
	NF = NNTT12 + NTP	INAD540
	WRITE (6,390)	INAD541
390	FORMAT (/ 10X, 18HDOUBLE TABLE NO. 1, 33H	INAD542
1	AND RUNOUT)	INAD543
	WRITE (6,330) (TABL2(J,1), J = 1, NTT1)	INAD544
	WRITE (6,330) (TABL2(J,1), J = NTT1P1, NNTT12;	INAD545
	WRITE (6,330) (TABL2(J,1), J = NT12P1,NF)	INAD546
400	NSKIP = NTSKIP	INAD547
	NLINE = 55	INAD548
	NPRT = 0	INAD549
	RETURN	INAD550
	END	INAD551
	SUBROUTINE FOR CALCULATING INITIAL CONDITIONS AT TOUCHDOWN	INIT 1
	SUBROUTINE INITI	INIT 2
	COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),	INIT 3
1	NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)	INIT 4
	REAL LT1, LT2, LT3, LH, LHV, KBG1, KBG2, KBG3,	INIT 5
1	KQB11, KQB22, KQB33, KQB44, KQB55, KQB66, KQB77, KQB88, KQB	INIT 6
	DIMENSION XN(3), XT1(3), XT2(3), XT3(3), XA1(3),	INIT 7
1	XA2(3), XA3(3), XH(3), LT1(3), LT2(3), LT3(3), LH(3), XIA1(3),	INIT 8
2	XIA2(3), XIA3(3), ALHG1(3,3), ALHG2(3,3), ALHG3(3,3),	INIT 9
3	GA1(3), GA2(3), GA3(3), GXIA1(3), GXIA2(3), GXIA3(3),	INIT 10
4	GAMB(3,3), GAMG1(3,3), GAMG2(3,3), GAMG3(3,3), GBAG1(3,3),	INIT 11
5	GBAG2(3,3), GBAG3(3,3), GBGG1(3,3), GBGG2(3,3), GBGG3(3,3),	INIT 12
6	PBH(3,8), PBA1(3,8), PBA2(3,8), PBA3(3,8), QB(8),	INIT 13
7	CIQA(8), CIQO(8), KQB(8), A2(15,16), X(9), VB(3)	INIT 14
	DIMENSION NTB1(110)	INIT 15

SOURCE DECK LISTING

```

      EQUIVALENCE (Y(2), VB), (Y(7), V), (Y(17), S1),      INIT 16
1  (Y(18), S2), (Y(19), S3), (Y(55), QB)                  INIT 17
      EQUIVALENCE (P(3), XN), (P(11), XT1), (P(14), XA1),  INIT 18
1  (P(17), WC13), (P(23), KBG1), (P(26), AA1), (P(42), VW10), INIT 19
2  (P(51), XT2), (P(54), XA2), (P(57), WC23), (P(63), KBG2), INIT 20
3  (P(66), AA2), (P(85), VW20), (P(91), XT3), (P(94), XA3),  INIT 21
4  (P(97), WC33), (P(103), KBG3), (P(106), AA3), (P(125), VW30), INIT 22
5  (P(131), XH), (P(134), LHV), (P(136), PHIHK0),          INIT 23
6  (P(164), VWIND), (P(165), RHO), (P(166), S)            INIT 24
      EQUIVALENCE (P(209), CIQA), (P(225), CIQ0)          INIT 25
      EQUIVALENCE (P(421), KQB11), (P(422), KQB22),        INIT 26
1  (P(423), KQB33), (P(424), KQB44), (P(425), KQB55),      INIT 27
2  (P(426), KQB66), (P(427), KQB77), (P(428), KQB88),      INIT 28
3  (P(431), PBH11), (P(432), PBH21), (P(433), PBH31),      INIT 29
4  (P(434), PBH12), (P(435), PBH22), (P(436), PBH32),      INIT 30
5  (P(437), PBH13), (P(438), PBH23), (P(439), PBH33),      INIT 31
6  (P(440), PBH14), (P(441), PBH24), (P(442), PBH34),      INIT 32
7  (P(443), PBH15), (P(444), PBH25), (P(445), PBH35),      INIT 33
8  (P(446), PBH16), (P(447), PBH26), (P(448), PBH36),      INIT 34
9  (P(449), PBH17), (P(450), PBH27), (P(451), PBH37),      INIT 35
1  (P(452), PBH18), (P(453), PBH28), (P(454), PBH38)       INIT 36
      EQUIVALENCE (P(571), GAMB), (P(601), GAMG1),         INIT 37
1  (P(619), ALHG1), (P(637), GBAG1), (P(646), GBGG1),      INIT 38
2  (P(701), GAMG2), (P(719), ALHG2), (P(737), GBAG2),      INIT 39
3  (P(746), GBGG2), (P(801), GAMG3), (P(819), ALHG3),      INIT 40
4  (P(837), GBAG3), (P(846), GBGG3), (P(976), KQB)         INIT 41
      EQUIVALENCE (NTEGER(15), NBE), (NTEGER(56), NTB1)    INIT 42
      CALL TABSN1(TABL1(1,7), 0.0, PA1, NTB1(7))           INIT 43
      CALL TABSN1(TABL1(1,59), 0.0, PA2, NTB1(59))          INIT 44
      PA3 = PA2                                              INIT 45
      S1 = -((PA1 - 14.7) * AA1) / KBG1                     INIT 46
      S2 = -((PA2 - 14.7) * AA2) / KBG2                     INIT 47
      S3 = -((PA3 - 14.7) * AA3) / KBG3                     INIT 48
      CALL TABSN1(TABL1(1,1), S1, XIA1(1), NTB1(1))         INIT 49
      CALL TABSN1(TABL1(1,2), S1, XIA1(3), NTB1(2))         INIT 50
      XIA1(2) = 0.                                           INIT 51
      CALL TABSN1(TABL1(1,51), S2, XIA2(1), NTB1(51))       INIT 52
      CALL TABSN1(TABL1(1,52), S2, XIA2(2), NTB1(52))       INIT 53
      CALL TABSN1(TABL1(1,53), S2, XIA2(3), NTB1(53))       INIT 54
      CALL TABSN1(TABL1(1,51), S3, XIA3(1), NTB1(51))       INIT 55
      CALL TABSN1(TABL1(1,52), S3, XIA3(2), NTB1(52))       INIT 56
      XIA3(2) = -XIA3(2)                                     INIT 57
      CALL TABSN1(TABL1(1,53), S3, XIA3(3), NTB1(53))       INIT 58
      DO 10 I = 1, 3                                         INIT 59
      LT1(I) = XN(I) - XT1(I)                                INIT 60
      LT2(I) = XN(I) - XT2(I)                                INIT 61
      LT3(I) = XN(I) - XT3(I)                                INIT 62
      LH(I) = XN(I) - XH(I)                                  INIT 63
      GA1(I) = 0.0                                           INIT 64
      GA2(I) = 0.0                                           INIT 65
      GA3(I) = 0.0                                           INIT 66
      DO 10 K = 1, 3                                         INIT 67

```

SOURCE DECK LISTING

	GA1() = GAMG1(K,I) * (XT1(K) - XA1(K) +	INIT 68
1	XIA1(I)) + GA1(I)	INIT 69
	GA2(I) = GAMG2(K,I) * (XT2(K) - XA2(K) +	INIT 70
1	XIA2(I)) + GA2(I)	INIT 71
10	GA3(I) = GAMG3(K,I) * (XT3(K) - XA3(K) +	INIT 72
1	XIA3(I)) + GA3(I)	INIT 73
	DO 20 I = 1, 3	INIT 74
	GXIA1(I) = 0.0	INIT 75
	GXIA2(I) = 0.0	INIT 76
	GXIA3(I) = 0.0	INIT 77
	DO 20 J = 1, 3	INIT 78
	GXIA1(I) = GA1(J) * ALHG1(I,J) + GXIA1(I)	INIT 79
	GXIA2(I) = GA2(J) * ALHG2(I,J) + GXIA2(I)	INIT 80
20	GXIA3(I) = GA3(J) * ALHG3(I,J) + GXIA3(I)	INIT 81
	V1QB = 0.0	INIT 82
	V2QB = 0.0	INIT 83
	V3QB = 0.0	INIT 84
	VHQB = 0.0	INIT 85
	V1L = 0.0	INIT 86
	V2L = 0.0	INIT 87
	V3L = 0.0	INIT 88
	VHL = 0.0	INIT 89
	V1GA = 0.0	INIT 90
	V2GA = 0.0	INIT 91
	V3GA = 0.0	INIT 92
	PHIHKR = PHIHK0 / 57.29578	INIT 93
	IF (NBE) 30, 130, 30	INIT 94
30	VBA1 = VB(1) + GAMB(1,1) * VWIND	INIT 95
	VBA2 = VB(2) + GAMB(1,2) * VWIND	INIT 96
	VBA3 = VB(3) + GAMB(1,3) * VWIND	INIT 97
	VA2 = VBA1 **2 + VBA2 **2 + VBA3 **2	INIT 98
	ALPHA = ATAN (VBA3 / VBA1) * 57.29578	INIT 99
	KQB(1,1) = KQB11	INIT100
	KQB(2,2) = KQB22	INIT101
	KQB(3,3) = KQB33	INIT102
	KQB(4,4) = KQB44	INIT103
	KQB(5,5) = KQB55	INIT104
	KQB(6,6) = KQB66	INIT105
	KQB(7,7) = KQB77	INIT106
	KQB(8,8) = KQB88	INIT107
	DO 40 I = 1, NBE	INIT108
	DO 40 J = 1, NBE	INIT109
40	A2(I,J) = 0.0	INIT110
	DO 50 I = 1, NBE	INIT111
	A2(I,I) = A2(I,I) + KQB(I,I)	INIT112
	NBE1 = NBE + 1	INIT113
50	A2(I,NBE1) = - 0.5 * RHO * S * VA2 * (CIQA(I)	INIT114
1	* ALPHA + CIQ0(I))	INIT115
	CALL GAUSS2(NBE, 1, 1.0 E-08, A2, X, K3)	INIT116
	IF (K3 -1) 60, 80, 60	INIT117
60	WRITE (6,70) K3	INIT118
70	FORMAT (// 10X, 25HGAUSS2 ERROR SIGNAL K3I =, I5)	INIT119

SOURCE DECK LISTING

80	DO 90 I = 1, NBE	INIT120
90	QB(I) = X(I)	INIT121
	DO 110 I = 1, NBE	INIT122
	DO 100 J = 1, 3	INIT123
	K = 26 + I * J	INIT124
	CALL TABSN1(TABL1(1,K), 0.0, PBA1(J,I), NTB1(K))	INIT125
	K = 77 + I * J	INIT126
100	CALL TABSN1(TABL1(1,K), 0.0, PBA2(J,I), NTB1(K))	INIT127
	PBA3(1,I) = PBA2(1,I)	INIT128
	PBA3(2,I) = - PBA2(2,I)	INIT129
110	PBA3(3,I) = PBA2(3,I)	INIT130
	PBH(1,1) = PBH11	INIT131
	PBH(2,1) = PBH21	INIT132
	PBH(3,1) = PBH31	INIT133
	PBH(1,2) = PBH12	INIT134
	PBH(2,2) = PBH22	INIT135
	PBH(3,2) = PBH32	INIT136
	PBH(1,3) = PBH13	INIT137
	PBH(2,3) = PBH23	INIT138
	PBH(3,3) = PBH33	INIT139
	PBH(1,4) = PBH14	INIT140
	PBH(2,4) = PBH24	INIT141
	PBH(3,4) = PBH34	INIT142
	PBH(1,5) = PBH15	INIT143
	PBH(2,5) = PBH25	INIT144
	PBH(3,5) = PBH35	INIT145
	PBH(1,6) = PBH16	INIT146
	PBH(2,6) = PBH26	INIT147
	PBH(3,6) = PBH36	INIT148
	PBH(1,7) = PBH17	INIT149
	PBH(2,7) = PBH27	INIT150
	PBH(3,7) = PBH37	INIT151
	PBH(1,8) = PBH18	INIT152
	PBH(2,8) = PBH28	INIT153
	PBH(3,8) = PBH38	INIT154
	DO 120 I = 1, 3	INIT155
	DO 120 J = 1, NBE	INIT156
	V1QB = GBGG1(3,I) * PBA1(I,J) * QB(J) + V1QB	INIT157
	V2QB = GBGG2(3,I) * PBA2(I,J) * QB(J) + V2QB	INIT158
	V3QB = GBGG2(3,I) * PBA3(I,J) * QB(J) + V3QB	INIT159
120	VHQB = GAMB(3,I) * PBH(I,J) * QB(J) + VHQB	INIT160
130	DO 140 I = 1, 3	INIT161
	V1L = GAMB(3,I) * LT1(I) + V1L	INIT162
	V2L = GAMB(3,I) * LT2(I) + V2L	INIT163
	V3L = GAMB(3,I) * LT3(I) + V3L	INIT164
	VHL = GAMB(3,I) * LH(I) + VHL	INIT165
	V1GA = GBAG1(3,I) * GXIA1(I) + V1GA	INIT166
	V2GA = GBAG2(3,I) * GXIA2(I) + V2GA	INIT167
140	V3GA = GBAG3(3,I) * GXIA3(I) + V3GA	INIT168
	V1 = - V1L - V1GA - V1QB - WC13 - VW10	INIT169
	V2 = - V2L - V2GA - V2QB - WC23 - VW20	INIT170
	V3 = - V3L - V3GA - V3QB - WC33 - VW30	INIT171

SOURCE DECK LISTING

```

1      VH = VHL - VHQB + INIT172
1      GAMB(3,1) * LHV * SIN(PHIHKR) - GAMB(3,3) * LHV * COS(PHIHKR) INIT173
      V = V1 INIT174
      IF (V - V2) 160, 160, 150 INIT175
150     V = V2 INIT176
160     IF (V - V3) 180, 180, 170 INIT177
170     V = V3 INIT178
180     IF (V - VH) 200, 200, 190 INIT179
190     V = VH INIT180
200     RETURN INIT181
      END INIT182

SUBROUTINE FOR CALCULATING THE TRANSFORMATION MATRICES
SUBROUTINE TRANS
COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),
1 NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)
      DIMENSION GAMB(3,3), CGAM(3,3), GAMG1(3,3),
1 ALG1(3,3), ALHG1(3,3), GAMW1(3,3), GBAG1(3,3), GBGG1(3,3),
2 GW1GB(3,3), GWBAG1(3,3), GAMG2(3,3), ALG2(3,3), ALHG2(3,3),
3 GAMW2(3,3), GBAG2(3,3), GBGG2(3,3), GW2GB(3,3), GWBAG2(3,3),
4 GAMG3(3,3), ALG3(3,3), ALHG3(3,3), GAMW3(3,3), GBAG3(3,3),
5 GBGG3(3,3), GW3GB(3,3), GWBAG3(3,3)
      EQUIVALENCE (Y(1), T), (Y(11), PHIR), (Y(12), THETR),
1 (Y(13), PSIR), (Y(64), THTG1R)
      EQUIVALENCE (P(18), ETA1), (P(19), ZETA1),
1 (P(58), ETA2), (P(59), ZETA2), (P(98), ETA3), (P(99), ZETA3)
      EQUIVALENCE (P(571), GAMB), (P(584), CGAM)
      EQUIVALENCE (P(601), GAMG1), (P(610), ALG1),
1 (P(619), ALHG1), (P(628), GAMW1), (P(637), GBAG1),
2 (P(646), GBGG1), (P(655), GW1GB), (P(664), GWBAG1)
      EQUIVALENCE (P(701), GAMG2), (P(710), ALG2),
1 (P(719), ALHG2), (P(728), GAMW2), (P(737), GBAG2),
2 (P(746), GBGG2), (P(755), GW2GB), (P(764), GWBAG2)
      EQUIVALENCE (P(801), GAMG3), (P(810), ALG3),
1 (P(819), ALHG3), (P(828), GAMW3), (P(837), GBAG3),
2 (P(846), GBGG3), (P(855), GW3GB), (P(864), GWBAG3)
      IF (T) 10, 10, 40
10     SINE1 = SIN(ETA1 / 57.29578)
      COSE1 = COS(ETA1 / 57.29578)
      SINZ1 = SIN(ZETA1 / 57.29578)
      COSZ1 = COS(ZETA1 / 57.29578)
      GAMG1(1,1) = COSE1
      GAMG1(1,2) = SINE1 * SINZ1
      GAMG1(1,3) = SINE1 * COSZ1
      GAMG1(2,1) = 0.0
      GAMG1(2,2) = COSZ1
      GAMG1(2,3) = - SINZ1
      GAMG1(3,1) = - SINE1
      GAMG1(3,2) = COSE1 * SINZ1
      GAMG1(3,3) = COSE1 * COSZ1
      SINE2 = SIN(ETA2 / 57.29578)
      COSE2 = COS(ETA2 / 57.29578)
      SINZ2 = SIN(ZETA2 / 57.29578)
      TRAN 1
      TRAN 2
      TRAN 3
      TRAN 4
      TRAN 5
      TRAN 6
      TRAN 7
      TRAN 8
      TRAN 9
      TRAN 10
      TRAN 11
      TRAN 12
      TRAN 13
      TRAN 14
      TRAN 15
      TRAN 16
      TRAN 17
      TRAN 18
      TRAN 19
      TRAN 20
      TRAN 21
      TRAN 22
      TRAN 23
      TRAN 24
      TRAN 25
      TRAN 26
      TRAN 27
      TRAN 28
      TRAN 29
      TRAN 30
      TRAN 31
      TRAN 32
      TRAN 33
      TRAN 34
      TRAN 35
      TRAN 36
      TRAN 37
      TRAN 38
      TRAN 39
      TRAN 40
      TRAN 41

```

SOURCE DECK LISTING

	COSZ2 = COS(ZETA2 / 57.29578)	TRAN 42
	GAMG2(1,1) = COSE2	TRAN 43
	GAMG2(1,2) = SINE2 * SINZ2	TRAN 44
	GAMG2(1,3) = SINE2 * COSZ2	TRAN 45
	GAMG2(2,1) = 0.0	TRAN 46
	GAMG2(2,2) = COSZ2	TRAN 47
	GAMG2(2,3) = - SINZ2	TRAN 48
	GAMG2(3,1) = - SINE2	TRAN 49
	GAMG2(3,2) = COSE2 * SINZ2	TRAN 50
	GAMG2(3,3) = COSE2 * COSZ2	TRAN 51
	SINE3 = SIN(ETA3 / 57.29578)	TRAN 52
	COSE3 = COS(ETA3 / 57.29578)	TRAN 53
	SINZ3 = SIN(ZETA3 / 57.29578)	TRAN 54
	COSZ3 = COS(ZETA3 / 57.29578)	TRAN 55
	GAMG3(1,1) = COSE3	TRAN 56
	GAMG3(1,2) = SINE3 * SINZ3	TRAN 57
	GAMG3(1,3) = SINE3 * COSZ3	TRAN 58
	GAMG3(2,1) = 0.0	TRAN 59
	GAMG3(2,2) = COSZ3	TRAN 60
	GAMG3(2,3) = - SINZ3	TRAN 61
	GAMG3(3,1) = - SINE3	TRAN 62
	GAMG3(3,2) = COSE3 * SINZ3	TRAN 63
	GAMG3(3,3) = COSE3 * COSZ3	TRAN 64
	DO 20 I = 1, 3	TRAN 65
	DO 20 J = 1, 3	TRAN 66
20	ALG2(I,J) = GAMG2(I,J)	TRAN 67
	ALG3(I,J) = GAMG3(I,J)	TRAN 68
	DO 30 I = 1, 3	TRAN 69
	ALHG2(I,I) = 1.0	TRAN 70
30	ALHG3(I,I) = 1.0	TRAN 71
	CGAM(1,1) = 1.0	TRAN 72
	ALHG1(3,3) = 1.0	TRAN 73
	GAMW1(3,3) = 1.0	TRAN 74
	GAMW2(3,3) = 1.0	TRAN 75
	GAMW3(3,3) = 1.0	TRAN 76
40	SPHI = SIN(PHIR)	TRAN 77
	CPHI = COS(PHIR)	TRAN 78
	STHET = SIN(THETR)	TRAN 79
	CTHET = COS(THETR)	TRAN 80
	TTHET = TAN(THETR)	TRAN 81
	SPSI = SIN(PSIR)	TRAN 82
	CPSI = COS(PSIR)	TRAN 83
	GAMB(1,1) = CTHET * CPSI	TRAN 84
	GAMB(1,2) = - SPSI * CPHI + SPHI * STHET * CPSI	TRAN 85
	GAMB(1,3) = SPSI * SPHI + CPHI * STHET * CPSI	TRAN 86
	GAMB(2,1) = CTHET * SPSI	TRAN 87
	GAMB(2,2) = CPHI * CPSI + SPHI * STHET * SPSI	TRAN 88
	GAMB(2,3) = - SPHI * CPSI + CPHI * STHET * SPSI	TRAN 89
	GAMB(3,1) = - STHET	TRAN 90
	GAMB(3,2) = SPHI * CTHET	TRAN 91
	GAMB(3,3) = CPHI * CTHET	TRAN 92
	CGAM(1,2) = TTHET * SPHI	TRAN 93

SOURCE DECK LISTING

	CGAM(1,3) = TTHET * CPHI	TRAN 94
	CGAM(2,2) = CPHI	TRAN 95
	CGAM(2,3) = - SPHI	TRAN 96
	CGAM(3,2) = SPHI / CTHET	TRAN 97
	CGAM(3,3) = CPHI / CTHET	TRAN 98
	ALHG1(1,1) = COS(THTG1R)	TRAN 99
	ALHG1(1,2) = SIN(THTG1R)	TRAN100
	ALHG1(2,1) = - ALHG1(1,2)	TRAN101
	ALHG1(2,2) = ALHG1(1,1)	TRAN102
	DO 50 I = 1, 3	TRAN103
	DO 50 J = 1, 3	TRAN104
	ALG1(I,J) = 0.0	TRAN105
50	DO 50 K = 1, 3	TRAN106
	ALG1(I,J) = ALHG1(J,K) * GAMG1(I,K) + ALG1(I,J)	TRAN107
	A1 = 0.0	TRAN108
	B1 = 0.0	TRAN109
	DO 60 I = 1, 3	TRAN110
60	A1 = ALG1(I,2) * GAMB(2,I) + A1	TRAN111
	B1 = ALG1(I,2) * GAMB(1,I) + B1	TRAN112
	GAMW1(1,1) = A1 / (SQRT(A1 **2 + B1 **2))	TRAN113
	GAMW1(1,2) = - GAMW1(1,1) * B1 / A1	TRAN114
	GAMW1(2,1) = - GAMW1(1,2)	TRAN115
	GAMW1(2,2) = GAMW1(1,1)	TRAN116
	A2 = GAMB(2,2)	TRAN117
	B2 = GAMB(1,2)	TRAN118
	GAMW2(1,1) = A2 / (SQRT(A2 **2 + B2 **2))	TRAN119
	GAMW2(1,2) = - GAMW2(1,1) * B2 / A2	TRAN120
	GAMW2(2,1) = - GAMW2(1,2)	TRAN121
	GAMW2(2,2) = GAMW2(1,1)	TRAN122
	GAMW3(1,1) = GAMW2(1,1)	TRAN123
	GAMW3(1,2) = GAMW2(1,2)	TRAN124
	GAMW3(2,2) = GAMW2(2,2)	TRAN125
	GAMW3(2,1) = - GAMW3(1,2)	TRAN126
	DO 70 I = 1, 3	TRAN127
	DO 70 J = 1, 3	TRAN128
	GBAG1(I,J) = 0.0	TRAN129
	GBAG2(I,J) = 0.0	TRAN130
	GBAG3(I,J) = 0.0	TRAN131
	DO 70 K = 1, 3	TRAN132
	GBAG1(I,J) = GAMB(I,K) * ALG1(K,J) + GBAG1(I,J)	TRAN133
	GBAG2(I,J) = GAMB(I,K) * ALG2(K,J) + GBAG2(I,J)	TRAN134
70	GBAG3(I,J) = GAMB(I,K) * ALG3(K,J) + GBAG3(I,J)	TRAN135
	DO 80 I = 1, 3	TRAN136
	DO 80 J = 1, 3	TRAN137
	GBGG1(I,J) = 0.0	TRAN138
	GBGG2(I,J) = 0.0	TRAN139
	GBGG3(I,J) = 0.0	TRAN140
	DO 80 K = 1, 3	TRAN141
	GBGG1(I,J) = GAMB(I,K) * GAMG1(K,J) + GBGG1(I,J)	TRAN142
	GBGG2(I,J) = GAMB(I,K) * GAMG2(K,J) + GBGG2(I,J)	TRAN143
80	GBGG3(I,J) = GAMB(I,K) * GAMG3(K,J) + GBGG3(I,J)	TRAN144
	DO 90 I = 1, 3	TRAN145

SOURCE DECK LISTING

	DO 90 J = 1, 3	TRAN146
	GW1GB(I,J) = 0.0	TRAN147
	GW2GB(I,J) = 0.0	TRAN148
	GW3GB(I,J) = 0.0	TRAN149
	DO 90 K = 1, 3	TRAN150
	GW1GB(I,J) = GAMW1(I,K) * GAMB(K,J) + GW1GB(I,J)	TRAN151
	GW2GB(I,J) = GAMW2(I,K) * GAMB(K,J) + GW2GB(I,J)	TRAN152
90	GW3GB(I,J) = GAMW3(I,K) * GAMB(K,J) + GW3GB(I,J)	TRAN153
	DO 100 I = 1, 3	TRAN154
	DO 100 J = 1, 3	TRAN155
	GWBAG1(I,J) = 0.0	TRAN156
	GWBAG2(I,J) = 0.0	TRAN157
	GWBAG3(I,J) = 0.0	TRAN158
	DO 100 K = 1, 3	TRAN159
	GWBAG1(I,J) = GW1GB(I,K) * ALG1(K,J) + GWBAG1(I,J)	TRAN160
	GWBAG2(I,J) = GW2GB(I,K) * ALG2(K,J) + GWBAG2(I,J)	TRAN161
100	GWBAG3(I,J) = GW3GB(I,K) * ALG3(K,J) + GWBAG3(I,J)	TRAN162
	RETURN	TRAN163
	END	TRAN164
	SUBROUTINE DYDXS	DYDX 1
	COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),	DYDX 2
1	NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)	DYDX 3
	REAL MV1V1, MO1O1, MO1O2, MO1O3, MO2O1, MO2O2,	DYDX 4
1	MO2O3, MO3O1, MO3O2, MO3O3, MV1S1, MV3S1, MO2S1, MOW1, MV1S2,	DYDX 5
2	MV2S2, MV3S2, MO1S2, MO2S2, MO3S2, MOW2, MV1S3, MV2S3, MV3S3,	DYDX 6
3	MO1S3, MO2S3, MO3S3, MOW3, MQG1, MQG2, MQG3, MOG1, MS1QG,	DYDX 7
4	MS2QG, MS3QG, MQB11, MQB22, MQB33, MQB44, MQB55, MQB66,	DYDX 8
5	MQB77, MQB88, MQB, KQB11, KQB22, KQB33, KQB44, KQB55, KQB66,	DYDX 9
6	KQB77, KQB88, KQB, KQG1, KQG2, KQG3, LAGXA1, LAGXA2, LAGXA3,	DYDX 10
7	LCGXA1, LCGXA2, LCGXA3, LH, LP, LTH, MP	DYDX 11
	DIMENSION VBD(3), VB(3), OMEGBD(3), OMEGB(3),	DYDX 12
1	QG1DD(2), QG2DD(2), QG3DD(3), QG1D(2), QG2D(2), QG3D(2),	DYDX 13
2	QQG1D(2), QQG2D(2), QQG3D(2), QG1(2), QG2(2), QG3(2),	DYDX 14
3	QBDD(8), QBD(8), QQBD(8), QB(8), ACCB(3)	DYDX 15
	DIMENSION FG1(3), FG2(3), FG3(3), FP(3), FH(3),	DYDX 16
1	FG1GAM(3), FG2GAM(3), FG3GAM(3), FHGAM(3), FGQG(2), FGQB(8),	DYDX 17
2	FHQB(8), MP(3), FPQB(8)	DYDX 18
	DIMENSION MQB(8,8), MQG1(2,2), MQG2(2,2), MQG3(2,2),	DYDX 19
1	MS1QG(2), MS2QG(2), MS3QG(3), ZQG1(2), ZQG2(2), ZQG3(2),	DYDX 20
2	CQB(8,8), KQG1(2,2), KQG2(2,2), KQG3(2,2), KQB(8,8)	DYDX 21
	DIMENSION PGA1(3,2), PGA2(3,2), PGA3(3,2), PBH(3,8),	DYDX 22
1	PBA1(3,8), PBA2(3,8), PBA3(3,8)	DYDX 23
	DIMENSION GAMB(3,3), GAMG1(3,3), GAMG2(3,3),	DYDX 24
1	GAMG3(3,3), GBAG1(3,3), GBAG2(3,3), GBAG3(3,3), GBGG1(3,3),	DYDX 25
2	GBGG2(3,3), GBGG3(3,3), ALG1(3,3), ALG2(3,3), ALG3(3,3),	DYDX 26
3	CGAM(3,3)	DYDX 27
	DIMENSION LAGXA1(3), LAGXA2(3), LAGXA3(3),	DYDX 28
1	LCGXA1(3), LCGXA2(3), LCGXA3(3), LH(3), LP(3), LTH(3),	DYDX 29
2	XH(3), XP(3), XTH(3), XN(3), XIA1D(3), XIA2D(3), XIA3D(3),	DYDX 30
3	GXIA1(3)	DYDX 31
	DIMENSION A(15,15), B(15), X(15), A2(15,16)	DYDX 32
	DIMENSION NTB1(110)	DYDX 33

SOURCE DECK LISTING

	EQUIVALENCE (Y(1), T), (Y(2), VB), (Y(5), D),	DYDX 34
1	(Y(6), S), (Y(7), V), (Y(8), OMEGB), (Y(11), PHIR),	DYDX 35
2	(Y(12), THETR), (Y(13), PSIR), (Y(14), S1D), (Y(15), S2D),	DYDX 36
3	(Y(16), S3D), (Y(17), S1), (Y(18), S2), (Y(19), S3),	DYDX 37
4	(Y(20), OMW1), (Y(21), OMW2), (Y(22), OMW3), (Y(23), BETA1),	DYDX 38
5	(Y(24), BETA2), (Y(25), BETA3), (Y(26), BTAS1), (Y(27), BTAS2),	DYDX 39
6	(Y(28), BTAS3), (Y(29), DLSU1), (Y(30), DLSU2), (Y(31), DLSU3),	DYDX 40
7	(Y(32), DLSL1), (Y(33), DLSL2), (Y(34), DLSL3), (Y(35), QG1D),	DYDX 41
8	(Y(37), QG2D), (Y(39), QG3D), (Y(41), QG1), (Y(43), QG2),	DYDX 42
9	(Y(45), QG3), (Y(47), QBD), (Y(55), QB), (Y(63), OMG1D),	DYDX 43
1	(Y(64), THTG1R)	DYDX 44
	EQUIVALENCE (DYDX(2), VBD), (DYDX(5), DD),	DYDX 45
1	(DYDX(6), SD), (DYDX(7), VD), (DYDX(8), OMEGBD),	DYDX 46
2	(DYDX(11), PHIRD), (DYDX(12), THETRD), (DYDX(13), PSIRD),	DYDX 47
3	(DYDX(14), S1DD), (DYDX(15), S2DD), (DYDX(16), S3DD),	DYDX 48
4	(DYDX(17), SS1D), (DYDX(18), SS2D), (DYDX(19), SS3D),	DYDX 49
5	(DYDX(20), OMW1D), (DYDX(21), OMW2D), (DYDX(22), OMW3D),	DYDX 50
6	(DYDX(23), BETA1D), (DYDX(24), BETA2D), (DYDX(25), BETA3D),	DYDX 51
7	(DYDX(26), BTAS1D), (DYDX(27), BTAS2D), (DYDX(28), BTAS3D),	DYDX 52
8	(DYDX(29), DLSU1D), (DYDX(30), DLSU2D), (DYDX(31), DLSU3D),	DYDX 53
9	(DYDX(32), DLSL1D), (DYDX(33), DLSL2D), (DYDX(34), DLSL3D),	DYDX 54
1	(DYDX(35), QG1DD), (DYDX(37), QG2DD), (DYDX(39), QG3DD),	DYDX 55
2	(DYDX(41), QQG1D), (DYDX(43), QQG2D), (DYDX(45), QQG3D),	DYDX 56
3	(DYDX(47), QBDD), (DYDX(55), QQBD), (DYDX(63), OMG1DD),	DYDX 57
4	(DYDX(64), OOMG1D)	DYDX 58
	EQUIVALENCE (P(3), XN)	DYDX 59
	EQUIVALENCE (P(17), WC13), (P(35), MV1S1),	DYDX 60
1	(P(36), MV3S1), (P(37), MO2S1), (P(38), MOW1), (P(39), MOG1),	DYDX 61
2	(P(40), ZQG1)	DYDX 62
	EQUIVALENCE (P(57), WC23), (P(75), MV1S2),	DYDX 63
1	(P(76), MV2S2), (P(77), MV3S2), (P(78), MO1S2), (P(79), MO2S2),	DYDX 64
2	(P(80), MO3S2), (P(81), MOW2), (P(83), ZQG2)	DYDX 65
	EQUIVALENCE (P(97), WC33), (P(115), MV1S3),	DYDX 66
1	(P(116), MV2S3), (P(117), MV3S3), (P(118), MO1S3),	DYDX 67
2	(P(119), MO2S3), (P(120), MO3S3), (P(121), MOW3),	DYDX 68
3	(P(123), ZQG3)	DYDX 69
	EQUIVALENCE (P(131), XH)	DYDX 70
	EQUIVALENCE (P(146), XTH), (P(149), SIGT),	DYDX 71
1	(P(150), THRUST)	DYDX 72
	EQUIVALENCE (P(151), MV1V1), (P(152), MO1O1),	DYDX 73
1	(P(153), MO1O2), (P(154), MO1O3), (P(155), MO2O1),	DYDX 74
2	(P(156), MO2O2), (P(157), MO2O3), (P(158), MO3O1),	DYDX 75
3	(P(159), MO3O2), (P(160), MO3O3)	DYDX 76
	EQUIVALENCE (P(161), XP)	DYDX 77
	EQUIVALENCE (P(401), MQB11), (P(402), MQB22),	DYDX 78
1	(P(403), MQB33), (P(404), MQB44), (P(405), MQB55),	DYDX 79
2	(P(406), MQB66), (P(407), MQB77), (P(408), MQB88)	DYDX 80
	EQUIVALENCE (P(411), ZQB11), (P(412), ZQB22),	DYDX 81
1	(P(413), ZQB33), (P(414), ZQB44), (P(415), ZQB55),	DYDX 82
2	(P(416), ZQB66), (P(417), ZQB77), (P(418), ZQB88)	DYDX 83
	EQUIVALENCE (P(421), KQB11), (P(422), KQB22),	DYDX 84
1	(P(423), KQB33), (P(424), KQB44), (P(425), KQB55),	DYDX 85

SOURCE DECK LISTING

2	(P(426), KQB66), (P(427), KQB77), (P(428), KQB88)	DYDX 86
	EQUIVALENCE (P(431), PBH11), (P(432), PBH21),	DYDX 87
1	(P(433), PBH31), (P(434), PBH12), (P(435), PBH22),	DYDX 88
2	(P(436), PBH32), (P(437), PBH13), (P(438), PBH23),	DYDX 89
3	(P(439), PBH33), (P(440), PBH14), (P(441), PBH24),	DYDX 90
4	(P(442), PBH34), (P(443), PBH15), (P(444), PBH25),	DYDX 91
5	(P(445), PBH35), (P(446), PBH16), (P(447), PBH26),	DYDX 92
6	(P(448), PBH36), (P(449), PBH17), (P(450), PBH27),	DYDX 93
7	(P(451), PBH37), (P(452), PBH18), (P(453), PBH28),	DYDX 94
8	(P(454), PBH38)	DYDX 95
	EQUIVALENCE (P(476), FP(1)), (P(479), MP(1)),	DYDX 96
1	(P(482), FPQB(1))	DYDX 97
	EQUIVALENCE (P(501), FS1), (P(513), VW1)	DYDX 98
	EQUIVALENCE (P(518), FS2), (P(530), VW2)	DYDX 99
	EQUIVALENCE (P(535), FS3), (P(547), VW3)	DYDX100
	EQUIVALENCE (P(551), FH)	DYDX101
	EQUIVALENCE (P(571), GAMB), (P(580), ACCB),	DYDX102
1	(P(584), CGAM)	DYDX103
	EQUIVALENCE (P(601), GAMG1), (P(610), ALG1),	DYDX104
1	(P(637), GBAG1), (P(646), GBGG1), (P(673), FG1),	DYDX105
2	(P(676), LAGXA1), (P(679), GXIA1), (P(682), PGA1),	DYDX106
3	(P(688), XIA1D), (P(691), CMOM)	DYDX107
	EQUIVALENCE (P(701), GAMG2), (P(710), ALG2),	DYDX108
1	(P(737), GBAG2), (P(746), GBGG2), (P(773), FG2),	DYDX109
2	(P(776), LAGXA2), (P(782), PGA2), (P(788), XIA2D)	DYDX110
	EQUIVALENCE (P(801), GAMG3), (P(810), ALG3),	DYDX111
1	(P(837), GBAG3), (P(846), GBGG3), (P(873), FG3),	DYDX112
2	(P(876), LAGXA3), (P(882), PGA3), (P(888), XIA3D)	DYDX113
	EQUIVALENCE (P(901), PBA1), (P(926), PBA2),	DYDX114
1	(P(951), PBA3)	DYDX115
	EQUIVALENCE (NTEGER(11), NHOOK)	DYDX116
	EQUIVALENCE (NTEGER(15), NBE), (NTEGER(16), NGE1),	DYDX117
1	(NTEGER(17), NGE2), (NTEGER(18), NGE3), (NTEGER(22), NCASR1),	DYDX118
2	(NTEGER(23), INIT)	DYDX119
	EQUIVALENCE (NTEGER(56), NTB1)	DYDX120
	EQUIVALENCE (NTEGER(203), NSU1), (NTEGER(204), NSU2),	DYDX121
1	(NTEGER(205), NSU3)	DYDX122
	IF (T) 10, 10, 40	DYDX123
10	CALL TRANS	DYDX124
	IF (INIT.EQ.0) CALL INITI	DYDX125
	DO 20 I = 1, 3	DYDX126
	LH(I) = XN(I) - XH(I)	DYDX127
	LP(I) = XN(I) - XP(I)	DYDX128
20	LTH(I) = XN(I) - XTH(I)	DYDX129
	FT1 = THRUST * COS(SIGT / 57.29578)	DYDX130
	FT3 = - THRUST * SIN(SIGT / 57.29578)	DYDX131
	MT2 = LTH(3) * FT1 - LTH(1) * FT3	DYDX132
	MQB(1,1) = MQB11	DYDX133
	MQB(2,2) = MQB22	DYDX134
	MQB(3,3) = MQB33	DYDX135
	MQB(4,4) = MQB44	DYDX136
	MQB(5,5) = MQB55	DYDX137

SOURCE DECK LISTING

MQB(6,6) = MQB66	DYDX138
MQB(7,7) = MQB77	DYDX139
MQB(8,8) = MQB88	DYDX140
KQB(1,1) = KQB11	DYDX141
KQB(2,2) = KQB22	DYDX142
KQB(3,3) = KQB33	DYDX143
KQB(4,4) = KQB44	DYDX144
KQB(5,5) = KQB55	DYDX145
KQB(6,6) = KQB66	DYDX146
KQB(7,7) = KQB77	DYDX147
KQB(8,8) = KQB88	DYDX148
CQB(1,1) = 2.0 * ZQB11 * SQRT(MQB11 * KQB11)	DYDX149
CQB(2,2) = 2.0 * ZQB22 * SQRT(MQB22 * KQB22)	DYDX150
CQB(3,3) = 2.0 * ZQB33 * SQRT(MQB33 * KQB33)	DYDX151
CQB(4,4) = 2.0 * ZQB44 * SQRT(MQB44 * KQB44)	DYDX152
CQB(5,5) = 2.0 * ZQB55 * SQRT(MQB55 * KQB55)	DYDX153
CQB(6,6) = 2.0 * ZQB66 * SQRT(MQB66 * KQB66)	DYDX154
CQB(7,7) = 2.0 * ZQB77 * SQRT(MQB77 * KQB77)	DYDX155
CQB(8,8) = 2.0 * ZQB88 * SQRT(MQB88 * KQB88)	DYDX156
PBH(1,1) = PBH11	DYDX157
PBH(2,1) = PBH21	DYDX158
PBH(3,1) = PBH31	DYDX159
PBH(1,2) = PBH12	DYDX160
PBH(2,2) = PBH22	DYDX161
PBH(3,2) = PBH32	DYDX162
PBH(1,3) = PBH13	DYDX163
PBH(2,3) = PBH23	DYDX164
PBH(3,3) = PBH33	DYDX165
PBH(1,4) = PBH14	DYDX166
PBH(2,4) = PBH24	DYDX167
PBH(3,4) = PBH34	DYDX168
PBH(1,5) = PBH15	DYDX169
PBH(2,5) = PBH25	DYDX170
PBH(3,5) = PBH35	DYDX171
PBH(1,6) = PBH16	DYDX172
PBH(2,6) = PBH26	DYDX173
PBH(3,6) = PBH36	DYDX174
PBH(1,7) = PBH17	DYDX175
PBH(2,7) = PBH27	DYDX176
PBH(3,7) = PBH37	DYDX177
PBH(1,8) = PBH18	DYDX178
PBH(2,8) = PBH28	DYDX179
PBH(3,8) = PBH38	DYDX180
DO 30 I = 1, 15	DYDX181
DO 30 J = 1, 15	DYDX182
A(I,J) = 0.	DYDX183
A(1,1) = MV1V1	DYDX184
A(1,7) = MV1S1	DYDX185
A(1,8) = MV1S2	DYDX186
A(1,9) = MV1S3	DYDX187
A(2,2) = MV1V1	DYDX188
A(2,8) = MV2S2	DYDX189

SOURCE DECK LISTING

	A(2,9) = MV2S3	DYDX190
	A(3,3) = MV1V1	DYDX191
	A(3,7) = MV3S1	DYDX192
	A(3,8) = MV3S2	DYDX193
	A(3,9) = MV3S3	DYDX194
	A(4,4) = MO1O1	DYDX195
	A(4,5) = MO1O2	DYDX196
	A(4,6) = MO1O3	DYDX197
	A(4,8) = MO1S2	DYDX198
	A(4,9) = MO1S3	DYDX199
	A(5,5) = MO2O2	DYDX200
	A(5,6) = MO2O3	DYDX201
	A(5,7) = MO2S1	DYDX202
	A(5,8) = MO2S2	DYDX203
	A(5,9) = MO2S3	DYDX204
	A(6,6) = MO3O3	DYDX205
	A(6,8) = MO3S2	DYDX206
	A(6,9) = MO3S3	DYDX207
	NA = 9 + NGE1 + NGE2 + NGE3	DYDX208
	NAM1 = NA - 1	DYDX209
	NAP1 = NA + 1	DYDX210
	NG1P9 = 9 + NGE1	DYDX211
	NG12P9 = 9 + NGE1 + NGE2	DYDX212
40	CALL GEAR1	DYDX213
	CALL GEAR2	DYDX214
	CALL GEAR3	DYDX215
	CALL AERO	DYDX216
	NHOOK = 0 FOR NO ARRESTING FORCE	DYDX217
	NHOOK = 1 FOR UNSYMMETRICAL ARRESTING FORCE	DYDX218
	NHOOK = 2 FOR SYMMETRICAL ARRESTING FORCE	DYDX219
	IF (NHOOK - 1) 50, 60, 70	DYDX220
50	CALL HOOK	DYDX221
	GO TO 80	DYDX222
60	CALL HOOKUS	DYDX223
	GO TO 80	DYDX224
70	CALL HOOKS	DYDX225
80	CALL TRANS	DYDX226
	IF (NSU1 - 1) 90, 90, 100	DYDX227
90	OMW1D = (VW1 + WC13) * (FG1(1) * GAMB(2,2) -	DYDX228
1	FG1(2) * GAMB(1,2)) / MOW1	DYDX229
	GO TO 110	DYDX230
100	OMW1D = 0.0	DYDX231
110	IF (NSU2 - 1) 120, 120, 130	DYDX232
120	OMW2D = (VW2 + WC23) * (FG2(1) * GAMB(2,2) -	DYDX233
1	FG2(2) * GAMB(1,2)) / MOW2	DYDX234
	GO TO 140	DYDX235
130	OMW2D = 0.0	DYDX236
140	IF (NSU3 - 1) 150, 150, 160	DYDX237
150	OMW3D = (VW3 + WC33) * (FG3(1) * GAMB(2,2) -	DYDX238
1	FG3(2) * GAMB(1,2)) / MOW3	DYDX239
	GO TO 170	DYDX240
160	OMW3D = 0.0	DYDX241

SOURCE DECK LISTING

170	DO 170 I = 1, 3	DYDX242
	FG1GAM(I) = 0.0	DYDX243
	FG2GAM(I) = 0.0	DYDX244
	FG3GAM(I) = 0.0	DYDX245
	FHGAM(I) = 0.0	DYDX246
	DO 180 J = 1, 3	DYDX247
	FG1GAM(I) = FG1(J) * GAMB(J,I) + FG1GAM(I)	DYDX248
	FG2GAM(I) = FG2(J) * GAMB(J,I) + FG2GAM(I)	DYDX249
	FG3GAM(I) = FG3(J) * GAMB(J,I) + FG3GAM(I)	DYDX250
180	FHGAM(I) = FH(J) * GAMB(J,I) + FHGAM(I)	DYDX251
	DO 190 I = 1, 3	DYDX252
	LCGXA1(I) = (WC13 + VW1) * GAMB(3,I) + LAGXA1(I)	DYDX253
	LCGXA2(I) = (WC23 + VW2) * GAMB(3,I) + LAGXA2(I)	DYDX254
190	LCGXA3(I) = (WC33 + VW3) * GAMB(3,I) + LAGXA3(I)	DYDX255
	B(1) = MV1V1 * (OMEGB(3) * VB(2) - OMEGB(2) * VB(3))	DYDX256
1	+ 386.09 * GAMB(3,1)) + FG1GAM(1) + FG2GAM(1) + FG3GAM(1)	DYDX257
2	+ FP(1) + FHGAM(1) + FT1	DYDX258
	B(2) = MV1V1 * (OMEGB(1) * VB(3) - OMEGB(3) * VB(1))	DYDX259
1	+ 386.09 * GAMB(3,2)) + FG1GAM(2) + FG2GAM(2) + FG3GAM(2)	DYDX260
2	+ FP(2) + FHGAM(2)	DYDX261
	B(3) = MV1V1 * (OMEGB(2) * VB(1) - OMEGB(1) * VB(2))	DYDX262
1	+ 386.09 * GAMB(3,3)) + FG1GAM(3) + FG2GAM(3) + FG3GAM(3)	DYDX263
2	+ FP(3) + FHGAM(3) + FT3	DYDX264
	B(4) = OMEGB(3) * (MO201 * OMEGB(	DYDX265
1	+ MO202 * OMEGB(2) + MO203 * OMEGB(3)) - OMEGB(2) *	DYDX266
2	(MO301 * OMEGB(1) + MO302 * OMEGB(2) + MO303 * OMEGB(3))	DYDX267
3	+ FG1GAM(3) * LCGXA1(2) - FG1GAM(2) * LCGXA1(3)	DYDX268
4	+ FG2GAM(3) * LCGXA2(2) - FG2GAM(2) * LCGXA2(3)	DYDX269
5	+ FG3GAM(3) * LCGXA3(2) - FG3GAM(2) * LCGXA3(3)	DYDX270
6	+ FHGAM(3) * LH(2) - FHGAM(2) * LH(3)	DYDX271
7	+ FP(3) * LP(2) - FP(2) * LP(3) + MP(1)	DYDX272
	B(5) = - OMEGB(3) * (MO101 * OMEGB(1)	DYDX273
1	+ MO102 * OMEGB(2) + MO103 * OMEGB(3)) + OMEGB(1) *	DYDX274
2	(MO301 * OMEGB(1) + MO302 * OMEGB(2) + MO303 * OMEGB(3))	DYDX275
3	+ FG1GAM(1) * LCGXA1(3) - FG1GAM(3) * LCGXA1(1)	DYDX276
4	+ FG2GAM(1) * LCGXA2(3) - FG2GAM(3) * LCGXA2(1)	DYDX277
5	+ FG3GAM(1) * LCGXA3(3) - FG3GAM(3) * LCGXA3(1)	DYDX278
6	+ FHGAM(1) * LH(3) - FHGAM(3) * LH(1)	DYDX279
7	+ FP(1) * LP(3) - FP(3) * LP(1) + MP(2) + MT2	DYDX280
	B(6) = OMEGB(2) * (MO101 * OMEGB(1)	DYDX281
1	+ MO102 * OMEGB(2) + MO103 * OMEGB(3)) - OMEGB(1) *	DYDX282
2	(MO201 * OMEGB(1) + MO202 * OMEGB(2) + MO203 * OMEGB(3))	DYDX283
3	+ FG1GAM(2) * LCGXA1(1) - FG1GAM(1) * LCGXA1(2)	DYDX284
4	+ FG2GAM(2) * LCGXA2(1) - FG2GAM(1) * LCGXA2(2)	DYDX285
5	+ FG3GAM(2) * LCGXA3(1) - FG3GAM(1) * LCGXA3(2)	DYDX286
6	+ FHGAM(2) * LH(1) - FHGAM(1) * LH(2)	DYDX287
7	+ FP(2) * LP(1) - FP(1) * LP(2) + MP(3)	DYDX288
	FGB7 = 0.0	DYDX289
	FGB8 = 0.0	DYDX290
	FGB9 = 0.0	DYDX291
	DO 200 I = 1, 3	DYDX292
	DO 200 J = 1, 3	DYDX293

SOURCE DECK LISTING

	FGB7 = FG1GAM(I) * ALG1(I,J) * XIA1D(J) + FGB7	DYDX294
	FGB8 = FG2GAM(I) * ALG2(I,J) * XIA2D(J) + FGB8	DYDX295
200	FGB9 = FG3GAM(I) * ALG3(I,J) * XIA3D(J) + FGB9	DYDX296
	B(7) = FS1 + FGB7 + 386.09 * (MV1S1 * GAMB(3,1)	DYDX297
1	+ MV3S1 * GAMB(3,3))	DYDX298
	B(8) = FS2 + FGB8 + 386.09 * (MV1S2 * GAMB(3,1)	DYDX299
1	+ MV2S2 * GAMB(3,2) + MV3S2 * GAMB(3,3))	DYDX300
	B(9) = FS3 + FGB9 + 386.09 * (MV1S3 * GAMB(3,1)	DYDX301
1	+ MV2S3 * GAMB(3,2) + MV3S3 * GAMB(3,3))	DYDX302
	CALL TABSN1(TABL1(1,9), S1, A(7,7), NTB1(9))	DYDX303
	CALL TABSN1(TABL1(1,61), S2, A(8,8), NTB1(61))	DYDX304
	CALL TABSN1(TABL1(1,61), S3, A(9,9), NTB1(61))	DYDX305
	IF (NGE1) 210, 240, 210	DYDX306
210	DO 230 I = 1, NGE1	DYDX307
	K = 15 + I	DYDX308
	L = 17 + I	DYDX309
	M = 101 + I	DYDX310
	MA = 9 + I	DYDX311
	CALL TABSN1(TABL1(1,K), S1, MQG1(I,I), NTB1(K))	DYDX312
	CALL TABSN1(TABL1(1,L), S1, KQG1(I,I), NTB1(L))	DYDX313
	CALL TABSN1(TABL1(1,M), S1, MS1QG(I), NTB1(M))	DYDX314
	A(7,MA) = MS1QG(I)	DYDX315
	A(MA,MA) = MQG1(I,I)	DYDX316
	FGQG(I) = 0.0	DYDX317
	DO 220 J = 1, 3	DYDX318
	DO 220 N = 1, 3	DYDX319
220	FGQG(I) = FG1GAM(J) * ALG1(J,N) * PGA1(N,I)	DYDX320
1	+ FGQG(I)	DYDX321
	B(MA) = FGQG(I) - KQG1(I,I) * QG1(I)	DYDX322
1	- 2.0 * ZQG1(I) * SQRT(KQG1(I,I) * MQG1(I,I)) * QG1D(I)	DYDX323
230	QQG1D(I) = QG1D(I)	DYDX324
240	IF (NGE2) 250, 280, 250	DYDX325
250	DO 270 I = 1, NGE2	DYDX326
	K = 67 + I	DYDX327
	L = 69 + I	DYDX328
	M = 103 + I	DYDX329
	MA = NG1P9 + I	DYDX330
	CALL TABSN1(TABL1(1,K), S2, MQG2(I,I), NTB1(K))	DYDX331
	CALL TABSN1(TABL1(1,L), S2, KQG2(I,I), NTB1(L))	DYDX332
	CALL TABSN1(TABL1(1,M), S2, MS2QG(I), NTB1(M))	DYDX333
	A(8,MA) = MS2QG(I)	DYDX334
	A(MA,MA) = MQG2(I,I)	DYDX335
	FGQG(I) = 0.0	DYDX336
	DO 260 J = 1, 3	DYDX337
	DO 260 N = 1, 3	DYDX338
260	FGQG(I) = FG2GAM(J) * ALG2(J,N) * PGA2(N,I)	DYDX339
1	+ FGQG(I)	DYDX340
	B(MA) = FGQG(I) - KQG2(I,I) * QG2(I)	DYDX341
1	- 2.0 * ZQG2(I) * SQRT(KQG2(I,I) * MQG2(I,I)) * QG2D(I)	DYDX342
270	QQG2D(I) = QG2D(I)	DYDX343
280	IF (NGE3) 290, 320, 290	DYDX344
290	DO 310 I = 1, NGE3	DYDX345

SOURCE DECK LISTING

	K = C + I	DYDX346
	L = 69 + I	DYDX347
	M = 103 + I	DYDX348
	MA = NG12P9 + I	DYDX349
	CALL TABSN1(TABL1(1,K), S3, MQG3(I,I), NTB1(K))	DYDX350
	CALL TABSN1(TABL1(1,L), S3, KQG3(I,I), NTB1(L))	DYDX351
	CALL TABSN1(TABL1(1,M), S3, MS3QG(I), NTB1(M))	DYDX352
	A(9,MA) = MS3QG(I)	DYDX353
	A(MA,MA) = MQG3(I,I)	DYDX354
	FGQG(I) = 0.0	DYDX355
	DO 300 J = 1, 3	DYDX356
	DO 300 N = 1, 3	DYDX357
300	FGQG(I) = FG3GAM(J) * ALG3(J,N) * PGA3(N,I)	DYDX358
1	+ FGQG(I)	DYDX359
	B(MA) = FGQG(I) - KQG3(I,I) * QG3(I)	DYDX360
1	- 2.0 * ZQG3(I) * SQRT(KQG3(I,I) * MQG3(I,I)) * QG3D(I)	DYDX361
310	QG3D(I) = QG3D(I)	DYDX362
320	DO 330 I = 1, NAM1	DYDX363
	JJ = I + 1	DYDX364
	DO 330 J = JJ, NA	DYDX365
	A(J,I) = A(I,J)	DYDX366
330	CONTINUE	DYDX367
	DO 340 I = 1, NA	DYDX368
	DO 340 J = 1, NA	DYDX369
340	A2(I,J) = A(I,J)	DYDX370
	DO 350 I = 1, NA	DYDX371
350	A2(I,NAP1) = B(I)	DYDX372
	CALL GAUSS2(NA, 1, 1.0 E-08, A2, X, K3)	DYDX373
	IF (K3 - 1) 360, 380, 360	DYDX374
360	WRITE (6,370) K3	DYDX375
370	FORMAT (//10X, 25HGAUSS2 ERROR SIGNAL K3 = , I5)	DYDX376
380	VBD(1) = X(1)	DYDX377
	VBD(2) = X(2)	DYDX378
	VBD(3) = X(3)	DYDX379
	OMEGBD(1) = X(4)	DYDX380
	OMEGBD(2) = X(5)	DYDX381
	OMEGBD(3) = X(6)	DYDX382
	S1DD = X(7)	DYDX383
	S2DD = X(8)	DYDX384
	S3DD = X(9)	DYDX385
	IF (NGE1) 390, 410, 390	DYDX386
390	DO 400 I = 1, NGE1	DYDX387
	MA = 9 + I	DYDX388
400	QG1DD(I) = X(MA)	DYDX389
410	IF (NGE2) 420, 440, 420	DYDX390
420	DO 430 I = 1, NGE2	DYDX391
	MA = NG1P9 + I	DYDX392
430	QG2DD(I) = X(MA)	DYDX393
440	IF (NGE3) 450, 470, 450	DYDX394
450	DO 460 I = 1, NGE3	DYDX395
	MA = NG12P9 + I	DYDX396
460	QG3DD(I) = X(MA)	DYDX397

SOURCE DECK LISTING

470	IF (NBE) 480, 520, 480	DYDX398
480	DO 510 I = 1, NBE	DYDX399
	FGQB(I) = 0.0	DYDX400
	DO 490 J = 1, 3	DYDX401
	DO 490 K = 1, 3	DYDX402
490	FGQB(I) = FG1GAM(J) * GAMG1(J,K) * PBA1(K,I)	DYDX403
1	+ FG2GAM(J) * GAMG2(J,K) * PBA2(K,I)	DYDX404
2	+ FG3GAM(J) * GAMG3(J,K) * PBA3(K,I) + FGQB(I)	DYDX405
	FHQB(I) = 0.0	DYDX406
	DO 500 J = 1, 3	DYDX407
500	FHQB(I) = FHGAM(J) * PBH(J,I) + FHQB(I)	DYDX408
	QBDD(I) = (FGQB(I) + FHQB(I) + FPQB(I) - KQB(I,I)	DYDX409
1	* QB(I) - CQB(I,I) * QBD(I)) / MQB(I,I)	DYDX410
510	QQBD(I) = QBD(I)	DYDX411
520	ACCB(1) = VBD(1) - OMEGB(3) * VB(2)	DYDX412
1	+ OMEGB(2) * VB(3)	DYDX413
	ACCB(2) = VBD(2) + OMEGB(3) * VB(1)	DYDX414
1	- OMEGB(1) * VB(3)	DYDX415
	ACCB(3) = VBD(3) - OMEGB(2) * VB(1)	DYDX416
1	+ OMEGB(1) * VB(2)	DYDX417
	PHIRD = OMEGB(1) * CGAM(1,1) + OMEGB(2) * CGAM(1,2)	DYDX418
1	+ CGAM(1,3) * OMEGB(3)	DYDX419
	THETRD = CGAM(2,2) * OMEGB(2) + CGAM(2,3) * OMEGB(3)	DYDX420
	PSIRD = CGAM(3,2) * OMEGB(2) + CGAM(3,3) * OMEGB(3)	DYDX421
	DD = GAMB(1,1) * VB(1) + GAMB(1,2) * VB(2)	DYDX422
1	+ GAMB(1,3) * VB(3)	DYDX423
	SD = GAMB(2,1) * VB(1) + GAMB(2,2) * VB(2)	DYDX424
1	+ GAMB(2,3) * VB(3)	DYDX425
	VD = GAMB(3,1) * VB(1) + GAMB(3,2) * VB(2)	DYDX426
1	+ GAMB(3,3) * VB(3)	DYDX427
	SS1D = S1D	DYDX428
	SS2D = S2D	DYDX429
	SS3D = S3D	DYDX430
	OOMG1D = OMG1D	DYDX431
	IF (NCASR1) 530, 540, 530	DYDX432
530	CALL TABSN1(TABL1(1,26), S1, MOG1, NTB1(26))	DYDX433
	CALL CASMO1(CMOM1)	DYDX434
	OMG1DD = (FG1GAM(1) * (ALG1(1,2) * GXIA1(1)	DYDX435
1	- ALG1(1,1) * GXIA1(2)) + FG1GAM(2) * (ALG1(2,2) * GXIA1(1)	DYDX436
2	- ALG1(2,1) * GXIA1(2)) + FG1GAM(3) * (ALG1(3,2) * GXIA1(1)	DYDX437
3	- ALG1(3,1) * GXIA1(2)) - CMOM1) / MOG1	DYDX438
540	RETURN	DYDX439
	END	DYDX440
	SUBROUTINE CASMO1(CMOM1)	CAS1 1
	I = 1	CAS1 2
	RETURN	CAS1 3
	END	CAS1 4
	SUBROUTINE FOR LANDING GEAR NO. 1 CALCULATIONS	GER1 1
	SUBROUTINE GEAR1	GER1 2
	COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),	GER1 3
1	NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)	GER1 4
	REAL LT1, LAGXA1, KBULK, KBF1, KBG1, NU1R,	GER1 5

SOURCE DECK LISTING

```

1  NUC1R, MUG1, MUR1, MUB1, MV1S1, MV3S1, MO2S1, MOW1, MW1          GER1  6
    DIMENSION XN(3), XT1(3), XA1(3), XIA1(3), XIA1D(3),          GER1  7
1  LT1(3), LAGXA1(3), GA1(3), GXIA1(3), GAMB(3,3), GAMG1(3,3),    GER1  8
2  GBAG1(3,3), GBGG1(3,3), GW1GB(3,3), GWBAG1(3,3), GAMW1(3,3),    GER1  9
3  AGXIA1(3), ALG1(3,2), ALHG1(3,3), PBA1(3,8), PGA1(3,2),        GER1 10
4  VB(3), VBD(3), OMEGB(3), OMEGBD(3), ACCB(3), QB(8), QBD(8),     GER1 11
5  QQBD(8), QBDD(8), QG1(2), QG1D(2), QQG1D(2), QG1DD(2),        GER1 12
6  UBA1DD(3), UGA1DD(3), FAX1(3), FG1(3), FG1H(3), BU1(3),       GER1 13
7  BL1(3), ZQG1(2)                                                GER1 14
    DIMENSION NTB1(110)                                          GER1 15
    EQUIVALENCE (Y(1), T), (Y(2), VB), (Y(5), D),              GER1 16
1  (Y(6), S), (Y(7), V), (Y(8), OMEGB), (Y(11), PHIR),          GER1 17
2  (Y(12), THETR), (Y(13), PSIR), (Y(14), S1D), (Y(17), S1),      GER1 18
3  (Y(20), OMW1), (Y(23), BETA1), (Y(26), BTAS1), (Y(29), DLSU1), GER1 19
4  (Y(32), DLSL1), (Y(35), QG1D), (Y(41), QG1), (Y(47), QBD),    GER1 20
5  (Y(55), QB), (Y(63), OMG1), (Y(64), THTG1R)                  GER1 21
    EQUIVALENCE (DYDX(2), VBD), (DYDX(5), DD),                  GER1 22
1  (DYDX(6), SD), (DYDX(7), VD), (DYDX(8), OMEGBD),              GER1 23
2  (DYDX(11), PHIRD), (DYDX(12), THETRD), (DYDX(13), PSIRD),      GER1 24
3  (DYDX(14), S1DD), (DYDX(17), SS1D), (DYDX(20), OMW1D),         GER1 25
4  (DYDX(23), BETA1D), (DYDX(26), BTAS1D), (DYDX(29), DLSU1D),    GER1 26
5  (DYDX(32), DLSL1D), (DYDX(35), QG1DD), (DYDX(41), QQG1D),     GER1 27
6  (DYDX(47), QBDD), (DYDX(55), QQBD), (DYDX(63), OMG1D),        GER1 28
7  (DYDX(64), OOMG1)                                             GER1 29
    EQUIVALENCE (P(3), XN), (P(6), KBULK), (P(7), DENOIL)      GER1 30
    EQUIVALENCE (P(11), XT1), (P(14), XA1),                     GER1 31
1  (P(17), WC13), (P(18), ETA1), (P(19), ZETA1), (P(20), MUB1),   GER1 32
2  (P(21), KBF1), (P(22), CBG1), (P(23), KBG1),                  GER1 33
3  (P(24), VOLH01), (P(25), AH1), (P(26), AA1), (P(27), AO1),     GER1 34
4  (P(28), CD1), (P(29), VOLS01), (P(30), AHS1), (P(31), ANSE1),  GER1 35
5  (P(32), ANSC1), (P(33), CDS1), (P(34), RW1), (P(35), MV1S1),  GER1 36
6  (P(36), MV3S1), (P(37), MO2S1), (P(38), MOW1),               GER1 37
7  (P(40), ZQG1), (P(42), VW10), (P(43), AP1AVG), (P(44), MUR1), GER1 38
8  (P(45), MW1), (P(46), CCOEF1)                                GER1 39
    EQUIVALENCE (P(501), FS1), (P(502), FG1H),                 GER1 40
1  (P(505), FAX1), (P(508), PH1), (P(509), PA1), (P(510), PHS1), GER1 41
2  (P(511), FFB1), (P(512), FFBL1), (P(513), VW1)               GER1 42
    EQUIVALENCE (P(571), GAMB), (P(580), ACCB)                  GER1 43
    EQUIVALENCE (P(593), FAXB1)                                 GER1 44
    EQUIVALENCE (P(601), GAMG1), (P(610), ALG1),                GER1 45
1  (P(619), ALHG1), (P(628), GAMW1), (P(637), GBAG1),            GER1 46
2  (P(646), GBGG1), (P(655), GW1GB), (P(664), GWBAG1),           GER1 47
3  (P(673), FG1), (P(676), LAGXA1), (P(679), GXIA1)             GER1 48
    EQUIVALENCE (P(682), PGA1)                                  GER1 49
    EQUIVALENCE (P(688), XIA1D)                                 GER1 50
    EQUIVALENCE (P(901), PBA1), (P(926), PBA2),                 GER1 51
1  (P(951), PBA3)                                                GER1 52
    EQUIVALENCE (NTEGER(15), NBE), (NTEGER(16), NGE1),          GER1 53
1  (NTEGER(19), NSTYP1)                                          GER1 54
    EQUIVALENCE (NTEGER(56), NTB1)                               GER1 55
    EQUIVALENCE (NTEGER(203), NSU1), (NTEGER(204), NSU2),        GER1 56
1  (NTEGER(205), NSU3)                                           GER1 57

```

SOURCE DECK LISTING

	IF (T) 20, 10, 20	GER1 58
10	FBU1 = 0.0	GER1 59
	FBL1 = 0.0	GER1 60
	NSU1 = 1	GER1 61
20	XIA1(2) = 0.0	GER1 62
	XIA1D(2) = 0.0	GER1 63
	CALL TABSN1(TABL1(1,1), S1, XIA1(1), NTB1(1))	GER1 64
	CALL TABSN1(TABL1(1,2), S1, XIA1(3), NTB1(2))	GER1 65
	DO 30 I = 1, 3	GER1 66
	LT1(I) = XN(I) - XT1(I)	GER1 67
	GA1(I) = 0.0	GER1 68
	DO 30 K = 1, 3	GER1 69
30	GA1(I) = GAMG1(K,I) * (XT1(K) - XA1(K)) + GA1(I)	GER1 70
	DO 50 I = 1, 3	GER1 71
50	GXIA1(I) = XIA1(I) + GA1(I)	GER1 72
	DO 60 I = 1, 3	GER1 73
	AGXIA1(I) = 0.0	GER1 74
	DO 60 K = 1, 3	GER1 75
60	AGXIA1(I) = ALG1(I,K) * GXIA1(K) + AGXIA1(I)	GER1 76
	V1L = 0.0	GER1 77
	V1QB = 0.0	GER1 78
	V1GA = 0.0	GER1 79
	V1QG = 0.0	GER1 80
	IF (NBE) 70, 100, 70	GER1 81
70	DO 80 I = 1, NBE	GER1 82
	DO 80 J = 1, 3	GER1 83
	K = 23 + 3 * I + J	GER1 84
80	CALL TABSN1(TABL1(1,K), S1, PBA1(J,I), NTB1(K))	GER1 85
	DO 90 LC = 1, 3	GER1 86
	DO 90 LD = 1, NBE	GER1 87
90	V1QB = GBGG1(3,LC) * PBA1(LC,LD) * QB(LD) + V1QB	GER1 88
100	IF (NGE1) 110, 140, 110	GER1 89
110	DO 120 I = 1, NGE1	GER1 90
	DO 120 J = 1, 3	GER1 91
	K = 16 + 3 * I + J	GER1 92
120	CALL TABSN1(TABL1(1,K), S1, PGA1(J,I), NTB1(K))	GER1 93
	DO 130 LC = 1, 3	GER1 94
	DO 130 LD = 1, NGE1	GER1 95
130	V1QG = GBAG1(3,LC) * PGA1(LC,LD) * QG1(LD) + V1QG	GER1 96
140	DO 150 LC = 1, 3	GER1 97
	V1L = GAMB(3,LC) * LT1(LC) + V1L	GER1 98
150	V1GA = GBAG1(3,LC) * GXIA1(LC) + V1GA	GER1 99
	VW1 = - V - V1L - V1QB - V1GA - V1QG - WC13	GER1100
	VTR1 = VW1 - VW10	GER1101
	IF (VTR1) 160, 170, 170	GER1102
160	CALL TABSN1(TABL1(1,5), VTR1, FG1(3), NTB1(5))	GER1103
	GO TO 180	GER1104
170	FG1(3) = 0.0	GER1105
180	CALL TABSN1(TABL1(1,3), S1, XIA1D(1), NTB1(3))	GER1106
	CALL TABSN1(TABL1(1,4), S1, XIA1D(3), NTB1(4))	GER1107
	DO 190 I = 1, 3	GER1108
190	GXA1(I) = LT1(I) + AGXIA1(I)	GER1109

SOURCE DECK LISTING

	RA11D = GW1GB(1,1) * VB(1) + GW1GB(1,2) * VB(2)	GER1110
1	+ GW1GB(1,3) * VB(3)	GER1111
	IF (VTR1) 200, 260, 260	GER1112
200	RA12D = GW1GB(2,1) * VB(1) + GW1GB(2,2) * VB(2)	GER1113
1	+ GW1GB(2,3) * VB(3)	GER1114
2	+ GW1GB(2,1) * (OMGB(2) * LAGXA1(3) - OMGB(3) * LAGXA1(2))	GER1115
3	+ GW1GB(2,2) * (OMGB(3) * LAGXA1(1) - OMGB(1) * LAGXA1(3))	GER1116
4	+ GW1GB(2,3) * (OMGB(1) * LAGXA1(2) - OMGB(2) * LAGXA1(1))	GER1117
5	+ GWBAG1(2,2) * OMG1 * GXIA1(1)	GER1118
6	- GWBAG1(2,1) * OMG1 * GXIA1(2)	GER1119
	IF (NSU1 - 2) 210, 240, 210	GER1120
210	RFA11D = OMW1 * (WC13 + VW1)	GER1121
	IF (RA11D + RFA11D) 230, 230, 220	GER1122
220	NU1R = ATAN(RA12D / (RA11D + RFA11D))	GER1123
	SPR1 = (RA11D + RFA11D) / RA11D	GER1124
	CALL TABSN1(TABL1(1,8), SPR1, MUG1, NTB1(8))	GER1125
	FG1H(1) = - MUG1 * ABS(FG1(3)) * COS(NU1R)	GER1126
	FG1H(2) = - MUG1 * ABS(FG1(3)) * SIN(NU1R)	GER1127
	FG1H(3) = FG1(3)	GER1128
	GO TO 250	GER1129
230	NSU1 = 2	GER1130
240	NUC1R = ATAN(RA12D / RA11D)	GER1131
	FG1H(1) = - MUR1 * ABS(FG1(3))	GER1132
	FC1 = CCOEF1 * 57.29578 * NUC1R * ABS(FG1(3))	GER1133
	FG1H(2) = - FC1	GER1134
	FG1H(3) = FG1(3)	GER1135
250	FG1(1) = GAMW1(1,1) * FG1H(1) + GAMW1(2,1) * FG1H(2)	GER1136
	FG1(2) = GAMW1(1,2) * FG1H(1) + GAMW1(2,2) * FG1H(2)	GER1137
260	VOLH1 = VOLH01 - (AH1 - AP1AVG) * S1	GER1138
	CALL TABSN1(TABL1(1,7), S1, PA1, NTB1(7))	GER1139
	CALL TABSN1(TABL1(1,6), S1, AP1, NTB1(6))	GER1140
	AN1 = AO1 - AP1	GER1141
	PT1 = - KBULK * BETA1 / VOLH1	GER1142
	IF (PT1) 270, 280, 280	GER1143
270	PT1 = 0.0	GER1144
280	PH1 = PT1 - PA1	GER1145
	VEL1 = SIGN(SQRT(2.0 * ABS(PH1) / DENOIL), PH1)	GER1146
	VOLS1 = VOLS01 + AHS1 * S1	GER1147
	PTS1 = - KBULK * BTAS1 / VOLS1	GER1148
	IF (PTS1) 290, 300, 300	GER1149
290	PTS1 = 0.0	GER1150
300	IF (NSTYP1 - 2) 310, 320, 310	GER1151
310	PHS1 = PTS1 - PA1	GER1152
	GO TO 330	GER1153
320	PHS1 = PTS1 - PT1	GER1154
330	VELS1 = SIGN(SQRT(2.0 * ABS(PHS1) / DENOIL), PHS1)	GER1155
	IF (PHS1) 340, 340, 350	GER1156
340	ANS1 = ANSC1	GER1157
	GO TO 360	GER1158
350	ANS1 = ANSE1	GER1159
360	BTAS1D = CDS1 * ANS1 * VELS1 + AHS1 * S1D	GER1160
	IF (MUB1) 530, 530, 370	GER1161

SOURCE DECK LISTING

370	FFBU1 = - KBF1 * DLSU1	GER1162
	FFBL1 = - KBF1 * DLSL1	GER1163
	FFBU1L = MUB1 * ABS(FBU1)	GER1164
	FFBL1L = MUB1 * ABS(FBL1)	GER1165
	IF (ABS(FFBU1) - FFBUI1L) 390, 380, 380	GER1166
380	TEST1 = FFBUI1 * S1D	GER1167
	IF (TEST1) 400, 390, 390	GER1168
390	DLSU1D = S1D	GER1169
	GO TO 410	GER1170
400	DLSU1D = 0.0	GER1171
	DLSU1 = - SIGN(FrBU1L / KBF1 , FFBUI1)	GER1172
	FFBU1 = - KBF1 * DLSU1	GER1173
410	IF (ABS(FFBL1) - FFBL1L) 430, 420, 420	GER1174
420	TEST2 = FFBL1 * S1D	GER1175
	IF (TEST2) 440, 430, 430	GER1176
430	DLSL1D = S1D	GER1177
	GO TO 530	GER1178
440	DLSL1D = 0.0	GER1179
	DLSL1 = - SIGN(FFBL1L / KBF1 , FFBL1)	GER1180
	FFBL1 = - KBF1 * DLSL1	GER1181
530	IF (NSTYP1 - 2) 540, 550, 540	GER1182
540	FS1 = - (PA1 - 14.7) * AA1 - PH1 * (AH1 - AP1)	GER1183
1	+ PHS1 * (AHS1 - ANS1) + FFBUI1 + FFBL1	GER1184
	BETA1D = CD1 * AN1 * VEL1 - (AH1 - AP1) * S1D	GER1185
	GO TO 560	GER1186
550	FS1 = - (PA1 - 14.7) * AA1 - PH1 * (AH1 - AP1 - AHS1)	GER1187
1	+ PHS1 * (AHS1 - ANS1) + FFBUI1 + FFBL1	GER1188
	BETA1D = CD1 * AN1 * VEL1 - (AH1 - AP1) * S1D	GER1189
1	- ANS1 * CDS1 * VEL1	GER1190
560	IF (S1) 570, 580, 580	GER1191
570	FS1 = FS1 - KBG1 * S1 - CBG1 * S1D	GER1192
580	DO 590 I = 1, 3	GER1193
590	FAX1(I) = - MW1 * (ALG1(1,I) * ACCB(1) +	GER1194
1	ALG1(2,I) * ACCB(2) + ALG1(3,I) * ACCB(3) +	GER1195
2	ALG1(1,I) * (OMEGBD(2) * LAGXA1(3) - OMEGBD(3) * LAGXA1(2)) +	GER1196
3	ALG1(2,I) * (OMEGBD(3) * LAGXA1(1) - OMEGBD(1) * LAGXA1(3)) +	GER1197
4	ALG1(3,I) * (OMEGBD(1) * LAGXA1(2) - OMEGBD(2) * LAGXA1(1)) +	GER1198
5	XIA1D(I) * S1DD - 386.09 * GBAG1(3,I)) +	GER1199
6	FG1(1) * GBAG1(1,I) + FG1(2) * GBAG1(2,I) +	GER1200
7	FG1(3) * GBAG1(3,I)	GER1201
	IF (NBE) 600, 640, 600	GER1202
600	DO 610 J = 1, 3	GER1203
	UBA1DD(J) = 0.0	GER1204
	DO 610 K = 1, NBE	GER1205
610	UBA1DD(J) = PBA1(J,K) * QBDD(K) + UBA1DD(J)	GER1206
	DO 630 I = 1, 3	GER1207
	F1B = 0.0	GER1208
	DO 620 K = 1, 3	GER1209
620	F1B = ALHG1(I,K) * UBA1DD(K) + F1B	GER1210
630	FAX1(I) = - MW1 * F1B + FAX1(I)	GER1211
640	IF (NGE1) 650, 680, 650	GER1212
650	DO 660 J = 1, 3	GER1213

SOURCE DECK LISTING

	UGA1DD(J) = 0.0	GER1214
	DO 660 K = 1, NGE1	GER1215
660	UGA1DD(J) = PGA1(J,K) * QG1DD(K) + UGA1DD(J)	GER1216
	DO 670 I = 1, 3	GER1217
670	FAX1(I) = - MW1 * UGA1DD(I) + FAX1(I)	GER1218
680	IF (MUB1) 690, 710, 690	GER1219
690	CALL TABSN1(TABL1(1,10), S1, BU1(1), NTB1(10))	GER1220
	CALL TABSN1(TABL1(1,11), S1, BU1(2), NTB1(11))	GER1221
	CALL TABSN1(TABL1(1,12), S1, BU1(3), NTB1(12))	GER1222
	CALL TABSN1(TABL1(1,13), S1, BL1(1), NTB1(13))	GER1223
	CALL TABSN1(TABL1(1,14), S1, BL1(2), NTB1(14))	GER1224
	CALL TABSN1(TABL1(1,15), S1, BL1(3), NTB1(15))	GER1225
	FBU1 = 0.0	GER1226
	FBL1 = 0.0	GER1227
	DO 700 I = 1, 3	GER1228
	FBU1 = BU1(I) * FAX1(I) + FBU1	GER1229
700	FBL1 = BL1(I) * FAX1(I) + FBL1	GER1230
710	RETURN	GER1231
	END	GER1232
	SUBROUTINE FOR LANDING GEAR NO. 2 CALCULATIONS	GER2 1
	SUBROUTINE GEAR2	GER2 2
	COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),	GER2 3
1	NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)	GER2 4
	REAL LT2, LAGXA2, KBULK, KBF2, KBG2, NU2R,	GER2 5
1	NUC2R, MUG2, MUR2, MUB2, MV1S2, MV2S2, MV3S2, MO1S2, MO2S2,	GER2 6
2	MO3S2, MOW2, MW2	GER2 7
	DIMENSION XN(3), XT2(3), XA2(3), XIA2(3), XIA2D(3),	GER2 8
1	LT2(3), LAGXA2(3), GA2(3), GXIA2(3), GAMB(3,3), GAMG2(3,3),	GER2 9
2	GBAG2(3,3), GBGG2(3,3), GW2GB(3,3), GWBAG2(3,3), GAMW2(3,3),	GER2 10
3	AGXIA2(3), ALG2(3,3), ALHG2(3,3), PBA2(3,8), PGA2(3,2),	GER2 11
4	VB(3), VBD(3), OMEGB(3), OMEGBD(3), ACCB(3), QB(8), QBD(8),	GER2 12
5	QQBD(8), QBDD(8), QG2(2), QG2D(2), QQG2D(2), QG2DD(2),	GER2 13
6	UBA2DD(3), UGA2DD(3), FAX2(3), FG2(3), FG2H(3), BU2(3),	GER2 14
7	BL2(3), ZQG2(2)	GER2 15
	DIMENSION NTB1(110)	GER2 16
	EQUIVALENCE (Y(1), T), (Y(2), VB), (Y(5), D),	GER2 17
1	(Y(6), S), (Y(7), V), (Y(8), OMEGB), (Y(11), PHIP),	GER2 18
2	(Y(12), THETR), (Y(13), PSIR), (Y(15), S2D), (Y(18), S2),	GER2 19
3	(Y(21), OMW2), (Y(24), BETA2), (Y(27), BTAS2), (Y(30), DLSU2),	GER2 20
4	(Y(33), DLSL2), (Y(37), QG2D), (Y(43), QG2), (Y(47), QBD),	GER2 21
5	(Y(55), QB)	GER2 22
	EQUIVALENCE (DYDX(2), VBD), (DYDX(5), DD),	GER2 23
1	(DYDX(6), SD), (DYDX(7), VD), (DYDX(8), OMEGBD),	GER2 24
2	(DYDX(11), PHIRD), (DYDX(12), THETRD), (DYDX(13), PSIRD),	GER2 25
3	(DYDX(15), S2DD), (DYDX(18), SS2D), (DYDX(21), OMW2D),	GER2 26
4	(DYDX(24), BETA2D), (DYDX(27), BTAS2D), (DYDX(30), DLSU2D),	GER2 27
5	(DYDX(33), DLSL2D), (DYDX(37), QG2DD), (DYDX(43), QQG2D),	GER2 28
6	(DYDX(47), QBDD), (DYDX(55), QQBD)	GER2 29
	EQUIVALENCE (P(3), XN), (P(6), KBULK), (P(7), DENOIL)	GER2 30
	EQUIVALENCE (P(51), XT2), (P(54), XA2),	GER2 31
1	(P(57), WC23), (P(58), ETA2), (P(59), ZETA2), (P(60), MUB2),	GER2 32
2	(P(61), KBF2), (P(62), CBG2), (P(63), KBG2),	GER2 33

SOURCE DECK LISTING

```

3  (P(64), VOLH02), (P(65), AH2), (P(66), AA2), (P(67), AO2), GER2 34
4  (P(68), CD2), (P(69), VOLS02), (P(70), AHS2), (P(71), ANSE2), GER2 35
5  (P(72), ANSC2), (P(73), CDS2), (P(74), RW2), (P(75), MV1S2), GER2 36
6  (P(76), MV2S2), (P(77), MV3S2), (P(78), MO1S2), GER2 37
7  (P(79), MO2S2), (P(80), MO3S2), (P(81), MOW2), GER2 38
8  (P(83), ZQG2), (P(85), VW20), (P(86), AP2AVG), (P(87), MUR2), GER2 39
9  (P(88), MW2), (P(89), CCOEF2) GER2 40
    EQUIVALENCE (P(518), FS2), (P(519), FG2H), GER2 41
1  (P(522), FAX2), (P(525), PH2), (P(526), PA2), (P(527), PHS2), GER2 42
2  (P(528), FFB2), (P(529), FFBL2), (P(530), VW2) GER2 43
    EQUIVALENCE (P(571), GAMB), (P(580), ACCB) GER2 44
    EQUIVALENCE (P(701), GAMG2), (P(710), ALG2), GER2 45
1  (P(719), ALHG2), (P(728), GAMW2), (P(737), GBAG2), GER2 46
2  (P(746), GBGG2), (P(755), GW2GB), (P(764), GWBAG2), GER2 47
3  (P(773), FG2), (P(776), LAGXA2) GER2 48
    EQUIVALENCE (P(782), PGA2) GER2 49
    EQUIVALENCE (P(788), XIA2D) GER2 50
    EQUIVALENCE (P(901), PBA1), (P(926), PBA2), GER2 51
1  (P(951), PBA3) GER2 52
    EQUIVALENCE (NTEGER(15), NBE), (NTEGER(17), NGE2), GER2 53
1  (NTEGER(20), NSTYP2) GER2 54
    EQUIVALENCE (NTEGER(56), NTB1) GER2 55
    EQUIVALENCE (NTEGER(203), NSU1), (NTEGER(204), NSU2), GER2 56
1  (NTEGER(205), NSU3) GER2 57
    IF (T) 10, 10, 20 GER2 58
10  FBU2 = 0.0 GER2 59
    FBL2 = 0.0 GER2 60
    NSU2 = 1 GER2 61
20  CALL TABSN1(TABL1(1,51), S2, XIA2(1), NTB1(51)) GER2 62
    CALL TABSN1(TABL1(1,52), S2, XIA2(2), NTB1(52)) GER2 63
    CALL TABSN1(TABL1(1,53), S2, XIA2(3), NTB1(53)) GER2 64
    DO 30 I = 1, 3 GER2 65
    LT2(I) = XN(I) - XT2(I) GER2 66
    GA2(I) = 0.0 GER2 67
    DO 30 K = 1, 3 GER2 68
30  GA2(I) = GAMG2(K,I) * (XT2(K) - XA2(K)) + GA2(I) GER2 69
    DO 50 I = 1, 3 GER2 70
50  GXIA2(I) = XIA2(I) + GA2(I) GER2 71
    DO 60 I = 1, 3 GER2 72
    AGXIA2(I) = 0.0 GER2 73
    DO 60 K = 1, 3 GER2 74
60  AGXIA2(I) = ALG2(I,K) * GXIA2(K) + AGXIA2(I) GER2 75
    V2L = 0.0 GER2 76
    V2QB = 0.0 GER2 77
    V2GA = 0.0 GER2 78
    V2QG = 0.0 GER2 79
    IF (NBE) 70, 100, 70 GER2 80
70  DO 80 I = 1, NBE GER2 81
    DO 80 J = 1, 3 GER2 82
    K = 74 + 3 * I + J GER2 83
80  CALL TABSN1(TABL1(1,K), S2, PBA2(J,I), NTB1(K)) GER2 84
    DO 90 LC = 1, 3 GER2 85

```


SOURCE DECK LISTING

90	DO 10 LD = 1, NBE	GER2 86
100	V2QB = GBGG2(3,LC) * PBA2(LC,LD) * QB(LD) + V2QB	GER2 87
110	IF (NGE2) 110, 140, 110	GER2 88
	DO 120 I = 1, NGE2	GER2 89
	DO 120 J = 1, 3	GER2 90
	K = 68 + 3 * I + J	GER2 91
120	CALL TABSN1(TABL1(1,K), S2, PGA2(J,I), NTB1(K))	GER2 92
	DO 130 LC = 1, 3	GER2 93
	DO 130 LD = 1, NGE2	GER2 94
130	V2QG = GBAG2(3,LC) * PGA2(LC,LD) * QG2(LD) + V2QG	GER2 95
140	DO 150 LC = 1, 3	GER2 96
	V2L = GAMB(3,LC) * LT2(LC) + V2L	GER2 97
150	V2GA = GBAG2(3,LC) * GXIA2(LC) + V2GA	GER2 98
	VW2 = - V - V2L - V2QB - V2GA - V2QG - WC23	GER2 99
	VTR2 = VW2 - VW20	GER2100
	IF (VTR2) 160, 170, 170	GER2101
160	CALL TABSN1 (TABL1(1,57), VTR2, FG2(3), NTB1(57))	GER2102
	GO TO 180	GER2103
170	FG2(3) = 0.0	GER2104
180	CALL TABSN1(TABL1(1,54), S2, XIA2D(1), NTB1(54))	GER2105
	CALL TABSN1(TABL1(1,55), S2, XIA2D(2), NTB1(55))	GER2106
	CALL TABSN1(TABL1(1,56), S2, XIA2D(3), NTB1(56))	GER2107
	DO 190 I = 1, 3	GER2108
190	LAGXA2(I) = LT2(I) + AGXIA2(I)	GER2109
	IF (VTR2) 200, 260, 260	GER2110
200	RA21D = GW2GB(1,1) * VB(1) + GW2GB(1,2) * VB(2)	GER2111
1	+ GW2GB(1,3) * VB(3)	GER2112
	RA22D = GW2GB(2,1) * (VB(1) + XIA2D(1) * S2D)	GER2113
1	+ GW2GB(2,2) * (VB(2) + XIA2D(2) * S2D)	GER2114
1	+ GW2GB(2,3) * (VB(3) + XIA2D(3) * S2D)	GER2115
2	+ GW2GB(2,1) * (OMGB(2) * LAGXA2(3) - OMGB(3) * LAGXA2(2))	GER2116
3	+ GW2GB(2,2) * (OMGB(3) * LAGXA2(1) - OMGB(1) * LAGXA2(3))	GER2117
4	+ GW2GB(2,3) * (OMGB(1) * LAGXA2(2) - OMGB(2) * LAGXA2(1))	GER2118
	IF (NSU2 - 2) 210, 240, 210	GER2119
210	RFA21D = OMW2 * (WC23 + VW2)	GER2120
	IF (RA21D + RFA21D) 230, 230, 220	GER2121
220	NU2R = ATAN(RA22D / (RA21D + RFA21D))	GER2122
	SPR2 = (RA21D + RFA21D) / RA21D	GER2123
	CALL TABSN1 (TABL1(1,60), SPR2, MUG2, NTB1(60))	GER2124
	FG2H(1) = - MUG2 * ABS(FG2(3)) * COS(NU2R)	GER2125
	FG2H(2) = - MUG2 * ABS(FG2(3)) * SIN(NU2R)	GER2126
	FG2H(3) = FG2(3)	GER2127
	GO TO 250	GER2128
230	NSU2 = 2	GER2129
240	NUC2R = ATAN(RA22D / RA21D)	GER2130
	FG2H(1) = - MUR2 * ABS(FG2(3))	GER2131
	FC2 = CCOEF2 * 57.29578 * NUC2R * ABS(FG2(3))	GER2132
	FG2H(2) = - FC2	GER2133
	FG2H(3) = FG2(3)	GER2134
250	FG2(1) = GAMW2(1,1) * FG2H(1) + GAMW2(2,1) * FG2H(2)	GER2135
	FG2(2) = GAMW2(1,2) * FG2H(1) + GAMW2(2,2) * FG2H(2)	GER2136
260	VOLH2 = VOLH02 - (AH2 - AP2AVG) * S2	GER2137

SOURCE DECK LISTING

	CALL TABSN1(TABL1(1,59), S2, PA2, NTB1(59))	GER2138
	CALL TABSN1(TABL1(1,58), S2, AP2, NTB1(58))	GER2139
	AN2 = AO2 - AP2	GER2140
	PT2 = - KBULK * BETA2 / VOLH2	GER2141
	IF (PT2) 270, 280, 280	GER2142
270	PT2 = 0.0	GER2143
280	PH2 = PT2 - PA2	GER2144
	VEL2 = SIGN(SQRT(2.0 * ABS(PH2) / DENOIL), PH2)	GER2145
	VOLS2 = VOLS02 + AHS2 * S2	GER2146
	PTS2 = - KBULK * BTAS2 / VCLS2	GER2147
	IF (PTS2) 290, 300, 300	GER2148
290	PTS2 = 0.0	GER2149
300	IF (NSTYP2 - 2) 310, 320, 310	GER2150
310	PHS2 = PTS2 - PA2	GER2151
	GO TO 330	GER2152
320	PHS2 = PTS2 - PT2	GER2153
330	VELS2 = SIGN(SQRT(2.0 * ABS(PHS2) / DENOIL), PHS2)	GER2154
	IF (PHS2) 340, 340, 350	GER2155
340	ANS2 = ANSC2	GER2156
	GO TO 360	GER2157
350	ANS2 = ANSE2	GER2158
360	BTAS2D = CDS2 * ANS2 * VELS2 + AHS2 * S2D	GER2159
	IF (MUB2) 530, 530, 370	GER2160
370	FFBU2 = - KBF2 * DLSU2	GER2161
	FFBL2 = - KBF2 * DLSSL2	GER2162
	FFBU2L = MUB2 * ABS(FBU2)	GER2163
	FFBL2L = MUB2 * ABS(FBL2)	GER2164
	IF (ABS(FFBU2) - FFBU2L) 390, 380, 380	GER2165
380	TEST1 = FFBU2 * S2D	GER2166
	IF (TEST1) 400, 390, 390	GER2167
390	DLSU2D = S2D	GER2168
	GO TO 410	GER2169
400	DLSU2D = 0.0	GER2170
	DLSU2 = - SIGN(FFBU2L / KBF2, FFBU2)	GER2171
	FFBU2 = - KBF2 * DLSU2	GER2172
410	IF (ABS(FFBL2) - FFBL2L) 430, 420, 420	GER2173
420	TEST2 = FFBL2 * S2D	GER2174
	IF (TEST2) 440, 430, 430	GER2175
430	DLSSL2D = S2D	GER2176
	GO TO 530	GER2177
440	DLSSL2D = 0.0	GER2178
	DLSSL2 = - SIGN(FFBL2L / KBF2, FFBL2)	GER2179
	FFBL2 = - KBF2 * DLSSL2	GER2180
530	IF (NSTYP2 - 2) 540, 550, 540	GER2181
540	FS2 = - (PA2 - 14.7) * AA2 - PH2 * (AH2 - AP2)	GER2182
1	+ PHS2 * (AHS2 - ANS2) + FFBU2 + FFBL2	GER2183
	BETA2D = CD2 * AN2 * VEL2 - (AH2 - AP2) * S2D	GER2184
	GO TO 560	GER2185
550	FS2 = - (PA2 - 14.7) * AA2 - PH2 * (AH2 - AP2 - AHS2)	GER2186
1	+ PHS2 * (AHS2 - ANS2) + FFBU2 + FFBL2	GER2187
	BETA2L = CD2 * AN2 * VEL2 - (AH2 - AP2) * S2D	GER2188
1	- ANS2 * CDS2 * VELS2	GER2189

SOURCE DECK LISTING

560	IF (S_) 570, 580, 580	GER2190
570	FS2 = FS2 - KBG2 * S2 - CBG2 * S2D	GER2191
580	DO 590 I = 1, 3	GER2192
590	FAX2(I) = - MW2 * (ALG2(1,I) * ACCB(1) +	GER2193
1	ALG2(2,I) * ACCB(2) + ALG2(3,I) * ACCB(3) +	GER2194
2	ALG2(1,I) * (OMEGBD(2) * LAGXA2(3) - OMEGBD(3) * LAGXA2(2)) +	GER2195
3	ALG2(2,I) * (OMEGBD(3) * LAGXA2(1) - OMEGBD(1) * LAGXA2(3)) +	GER2196
4	ALG2(3,I) * (OMEGBD(1) * LAGXA2(2) - OMEGBD(2) * LAGXA2(1)) +	GER2197
5	XIA2D(I) * S2DD - 386.09 * GBAG2(3,I)) +	GER2198
6	FG2(I) * GBAG2(1,I) + FG2(2) * GBAG2(2,I) +	GER2199
7	FG2(3) * GBAG2(3,I)	GER2200
	IF (NBE) 600, 640, 600	GER2201
600	DO 610 J = 1, 3	GER2202
	UBA2DD(J) = 0.0	GER2203
	DO 610 K = 1, NBE	GER2204
610	UBA2DD(J) = PBA2(J,K) * QBDD(K) + UBA2DD(J)	GER2205
	DO 630 I = 1, 3	GER2206
	F2B = 0.0	GER2207
	DO 630 K = 1, 3	GER2208
620	F2B = ALHG2(I,K) * UBA2DD(K) + F2B	GER2209
630	FAX2(I) = - MW2 * F2B + FAX2(I)	GER2210
640	IF (NGE2) 650, 680, 650	GER2211
650	DO 660 J = 1, 3	GER2212
	UGA2DD(J) = 0.0	GER2213
	DO 660 K = 1, NGE2	GER2214
660	UGA2DD(J) = PGA2(J,K) * QG2DD(K) + UGA2DD(J)	GER2215
	DO 670 I = 1, 3	GER2216
670	FAX2(I) = - MW2 * UGA2DD(I) + FAX2(I)	GER2217
680	IF (MUB2) 690, 710, 690	GER2218
690	CALL TABSN1(TABL1(1,62), S2, BU2(1), NTB1(62))	GER2219
	CALL TABSN1(TABL1(1,63), S2, BU2(2), NTB1(63))	GER2220
	CALL TABSN1(TABL1(1,64), S2, BU2(3), NTB1(64))	GER2221
	CALL TABSN1(TABL1(1,65), S2, BL2(1), NTB1(65))	GER2222
	CALL TABSN1(TABL1(1,66), S2, BL2(2), NTB1(66))	GER2223
	CALL TABSN1(TABL1(1,67), S2, BL2(3), NTB1(67))	GER2224
	FBU2 = 0.0	GER2225
	FBL2 = 0.0	GER2226
	DO 700 I = 1, 3	GER2227
	FBU2 = BU2(I) * FAX2(I) + FBU2	GER2228
700	FBL2 = BL2(I) * FAX2(I) + FBL2	GER2229
710	RETURN	GER2230
	END	GER2231
	SUBROUTINE FOR LANDING GEAR NO. 3 CALCULATIONS	GER3 1
	SUBROUTINE GEAR3	GER3 2
	COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),	GER3 3
1	NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)	GER3 4
	REAL LT3, LAGXA3, KBULK, KBF3, KBG3, NU3R,	GER3 5
1	NUC3R, MUG3, MUR3, MUB3, MV1S3, MV2S3, MV3S3, MO1S3, MO2S3,	GER3 6
2	MO3S3, MOW3, MW3	GER3 7
	DIMENSION XN(3), XT3(3), XA3(3), XIA3(3), XIA3D(3),	GER3 8
1	LT3(3), LAGXA3(3), GA3(3), GXIA3(3), GAMB(3,3), GAMG3(3,3),	GER3 9
2	GBAG3(3,3), GBGG3(3,3), GW3GB(3,3), GWBAG3(3,3), GAMW3(3,3),	GER3 10

SOURCE DECK LISTING

```

3  AGX1A3(3), ALG3(2,3), ALHG3(3,3), PBA3(3,8), PGA3(3,2), GER3 11
4  VB(3), VBD(3), OMEGB(3), OMEGBD(3), ACCB(3), QB(8), QBD(8), GER3 12
5  QQBD(8), QBDD(8), QG3(2), QG3D(2), QQG3D(2), QG3DD(3), GER3 13
6  UBA3DD(3), UGA3DD(3), FAX3(3), FG3(3), FG3H(3), BU3(3), GER3 14
7  BL3(3), ZQG3(2) GER3 15
      DIMENSION NTB1(110) GER3 16
      EQUIVALENCE (Y(1), T), (Y(2), VB), (Y(5), D), GER3 17
1  (Y(6), S), (Y(7), V), (Y(8), OMEGB), (Y(11), PHIR), GER3 18
2  (Y(12), THETR), (Y(13), PSIR), (Y(16), S3D), (Y(19), S3), GER3 19
3  (Y(22), OMW3), (Y(25), BETA3), (Y(28), BTAS3), (Y(31), DLS3), GER3 20
4  (Y(34), DLSL3), (Y(39), QG3D), (Y(45), QG3), (Y(47), QBD), GER3 21
5  (Y(55), QB) GER3 22
      EQUIVALENCE (DYDX(2), VBD), (DYDX(5), DD), GER3 23
1  (DYDX(6), SD), (DYDX(7), VD), (DYDX(8), OMEGBD), GER3 24
2  (DYDX(11), PHIRD), (DYDX(12), THETRD), (DYDX(13), PSIRD), GER3 25
3  (DYDX(16), S3DD), (DYDX(19), SS3D), (DYDX(22), OMW3D), GER3 26
4  (DYDX(25), BETA3D), (DYDX(28), BTAS3D), (DYDX(31), DLSU3D), GER3 27
5  (DYDX(34), DLSL3D), (DYDX(39), QG3DD), (DYDX(45), QQG3D), GER3 28
6  (DYDX(47), QEJD), (DYDX(55), QQBD) GER3 29
      EQUIVALENCE (P(3), XN), (P(6), KBULK), (P(7), DENOIL) GER3 30
      EQUIVALENCE (P(91), XT3), (P(94), XA3), GER3 31
1  (P(97), WC33), (P(98), ETA3), (P(99), ZETA3), (P(100), MUB3), GER3 32
2  (P(101), KBF3), (P(102), CBG3), (P(103), KBG3), GER3 33
3  (P(104), VOLH03), (P(105), AH3), (P(106), AA3), (P(107), AO3), GER3 34
4  (P(108), CD3), (P(109), VOLS03), (P(110), AHS3), GER3 35
5  (P(111), ANSE3), (P(112), ANSC3), (P(113), CDS3), GER3 36
6  (P(114), RV3), (P(115), MV1S3), (P(116), MV2S3), GER3 37
7  (P(117), MV3S3), (P(118), MO1S3), (P(119), MO2S3), GER3 38
8  (P(120), MO3S3), (P(121), MOW3), GER3 39
9  (P(123), ZQG3), (P(125), VW30), (P(126), AP3AVG), GER3 40
1  (P(127), MUR3), (P(128), MW3), (P(129), CCOEF3) GER3 41
      EQUIVALENCE (P(535), FS3), (P(536), FG3H), GER3 42
1  (P(539), FAX3), (P(542), PH3), (P(543), PA3), (P(544), PHS3), GER3 43
2  (P(545), FFB3), (P(546), FFBL3), (P(547), VW3) GER3 44
      EQUIVALENCE (P(571), GAMB), (P(580), ACCB) GER3 45
      EQUIVALENCE (P(801), GAMG3), (P(810), ALG3), GER3 46
1  (P(819), ALHG3), (P(828), GAMW3), (P(837), GBAG3), GER3 47
2  (P(846), GBGG3), (P(855), GW3GB), (P(864), GWBAG3), GER3 48
3  (P(873), FG3), (P(876), LAGXA3) GER3 49
      EQUIVALENCE (P(882), PGA3) GER3 50
      EQUIVALENCE (P(888), XIA3D) GER3 51
      EQUIVALENCE (P(901), PBA1), (P(926), PBA2), GER3 52
1  (P(951), PBA3) GER3 53
      EQUIVALENCE (NTEGER(15), NE3), (NTEGER(18), NGE3), GER3 54
1  (NTEGER(21), NSTYP3) GER3 55
      EQUIVALENCE (NTEGER(56), NTB1) GER3 56
      EQUIVALENCE (NTEGER(203), NSU1), (NTEGER(204), NSU2), GER3 57
1  (NTEGER(205), NSU3) GER3 58
      IF (T) 10, 10, 20 GER3 59
10  FBU3 = 0.0 GER3 60
      FBL3 = 0.0 GER3 61
      NSU3 = 1 GER3 62

```

SOURCE DECK LISTING

20	CALL TABSN1(TABL1(1,51), S3, XIA3(1), NTB1(51))	GER3 63
	CALL TABSN1(TABL1(1,52), S3, XIA3(2), NTB1(52))	GER3 64
	XIA3(2) = - XIA3(2)	GER3 65
	CALL TABSN1(TABL1(1,53), S3, XIA3(3), NTB1(53))	GER3 66
	DO 30 I = 1, 3	GER3 67
	LT3(I) = XN(I) - XT3(I)	GER3 68
	GA3(I) = 0.0	GER3 69
	DO 30 K = 1, 3	GER3 70
30	GA3(I) = GAMG3(K,I) * (XT3(K) - XA3(K)) + GA3(I)	GER3 71
	DO 50 I = 1, 3	GER3 72
50	GXIA3(I) = XIA3(I) + GA3(I)	GER3 73
	DO 60 I = 1, 3	GER3 74
	AGXIA3(I) = 0.0	GER3 75
	DO 60 K = 1, 3	GER3 76
60	AGXIA3(I) = ALG3(I,K) * GXIA3(K) + AGXIA3(I)	GER3 77
	V3L = 0.0	GER3 78
	V3QB = 0.0	GER3 79
	V3GA = 0.0	GER3 80
	V3QG = 0.0	GER3 81
	IF (NBE) 70, 110, 70	GER3 82
70	DO 90 I = 1, NBE	GER3 83
	DO 80 J = 1, 3	GER3 84
	K = 74 + 3 * I + J	GER3 85
80	CALL TABSN1(TABL1(1,K), S3, PBA3(J,I), NTB1(K))	GER3 86
90	PBA3(2,I) = - PBA3(2,I)	GER3 87
	DO 100 LC = 1, 3	GER3 88
	DO 100 LD = 1, NBE	GER3 89
100	V3QB = GBGG3(3,LC) * PBA3(LC,LD) * QB(LD) + V3QB	GER3 90
110	IF (NGE3) 120, 160, 120	GER3 91
120	DO 140 I = 1, NGE3	GER3 92
	DO 130 J = 1, 3	GER3 93
	K = 68 + 3 * I + J	GER3 94
130	CALL TABSN1(TABL1(1,K), S3, PGA3(J,I), NTB1(K))	GER3 95
140	PGA3(2,I) = - PGA3(2,I)	GER3 96
	DO 150 LC = 1, 3	GER3 97
	DO 150 LD = 1, NGE3	GER3 98
150	V3QG = GBAG3(3,LC) * PGA3(LC,LD) * QG3(LD) + V3QG	GER3 99
160	DO 170 LC = 1, 3	GER3 100
	V3L = GAMB(3,LC) * LT3(LC) + V3L	GER3 101
170	V3GA = GBAG3(3,LC) * GXIA3(LC) + V3GA	GER3 102
	VW3 = - V - V3L - V3QB - V3GA - V3QG - WC33	GER3 103
	VTR3 = VW3 - VW30	GER3 104
	IF (VTR3) 180, 190, 190	GER3 105
180	CALL TABSN1(TABL1(1,57), VTR3, FG3(3), NTB1(57))	GER3 106
	GO TO 200	GER3 107
190	FG3(3) = 0.0	GER3 108
200	CALL TABSN1(TABL1(1,54), S3, XIA3D(1), NTB1(54))	GER3 109
	CALL TABSN1(TABL1(1,55), S3, XIA3D(2), NTB1(55))	GER3 110
	CALL TABSN1(TABL1(1,56), S3, XIA3D(3), NTB1(56))	GER3 111
	XIA3D(2) = - XIA3D(2)	GER3 112
	DO 210 I = 1, 3	GER3 113
210	LAGXA3(I) = LT3(I) + AGXIA3(I)	GER3 114

SOURCE DECK LISTING

	IF (VTR3) 220, 280, 280	GER3115
220	RA31D = GW3GB(1,1) * VB(1) + GW3GB(1,2) * VB(2)	GER3116
1	+ GW3GB(1,3) * VB(3)	GER3117
	RA32D = GW3GB(2,1) * (VB(1) + XIA3D(1) * S3D)	GER3118
1	+ GW3GB(2,2) * (VB(2) + XIA3D(2) * S3D)	GER3119
1	+ GW3GB(2,3) * (VB(3) + XIA3D(3) * S3D)	GER3120
2	+ GW3GB(2,1) * (OMEGB(2) * LAGXA3(3) - OMEGB(3) * LAGXA3(2))	GER3121
3	+ GW3GB(2,2) * (OMEGB(3) * LAGXA3(1) - OMEGB(1) * LAGXA3(3))	GER3122
4	+ GW3GB(2,3) * (OMEGB(1) * LAGXA3(2) - OMEGB(2) * LAGXA3(1))	GER3123
	IF (NSU3 - 2) 230, 260, 230	GER3124
230	RFA31D = OMW3 * (WC33 + VW3)	GER3125
	IF (RA31D + RFA31D) 250, 250, 240	GER3126
240	NU3R = ATAN(RA32D / (RA31D + RFA31D))	GER3127
	SPR3 = (RA31D + RFA31D) / RA31D	GER3128
	CALL TABSN1(TABL1(1,60), SPR3, MUG3, NTB1(60))	GER3129
	FG3H(1) = - MUG3 * ABS(FG3(3)) * COS(NU3R)	GER3130
	FG3H(2) = - MUG3 * ABS(FG3(3)) * SIN(NU3R)	GER3131
	FG3H(3) = FG3(3)	GER3132
	GO TO 270	GER3133
250	NSU3 = 2	GER3134
260	NUC3R = ATAN(RA32D / RA31D)	GER3135
	FG3H(1) = - MUR3 * ABS(FG3(3))	GER3136
	FC3 = CCOEF3 * 57.29578 * NUC3R * ABS(FG3(3))	GER3137
	FG3H(2) = - FC3	GER3138
	FG3H(3) = FG3(3)	GER3139
270	FG3(1) = GAMW3(1,1) * FG3H(1) + GAMW3(2,1) * FG3H(2)	GER3140
	FG3(2) = GAMW3(1,2) * FG3H(1) + GAMW3(2,2) * FG3H(2)	GER3141
280	VOLH3 = VOLH03 - (AH3 - AP3AVG) * S3	GER3142
	CALL TABSN1(TABL1(1,59), S3, PA3, NTB1(59))	GER3143
	CALL TABSN1(TABL1(1,58), S3, AP3, NTB1(58))	GER3144
	AN3 = AO3 - AP3	GER3145
	PT3 = - KBULK * BETA3 / VOLH3	GER3146
	IF (PT3) 290, 300, 300	GER3147
290	PT3 = 0.0	GER3148
300	PH3 = PT3 - PA2	GER3149
	VEL3 = SIGN(SQRT(2.0 * ABS(PH3) / DENOIL), PH3)	GER3150
	VOLS3 = VOLS03 + AHS3 * S3	GER3151
	PTS3 = - KBULK * BTAS3 / VOLS3	GER3152
	IF (PTS3) 310, 320, 320	GER3153
310	PTS3 = 0.0	GER3154
320	IF (NSTYP3 - 2) 330, 340, 330	GER3155
330	PHS3 = PTS3 - PA3	GER3156
	GO TO 350	GER3157
340	PHS3 = PTS3 - PT3	GER3158
350	VELS3 = SIGN(SQRT(2.0 * ABS(PHS3) / DENOIL), PHS3)	GER3159
	IF (PHS3) 360, 360, 370	GER3160
360	ANS3 = ANSC3	GER3161
	GO TO 380	GER3162
370	ANS3 = ANSE3	GER3163
380	ETAS3D = CDS3 * ANS3 * VELS3 + AHS3 * S3D	GER3164
	IF (MUB3) 550, 550, 390	GER3165
390	FFBU3 = - KBF3 * DLSU3	GER3166

SOURCE DECK LISTING

	FFBL = - KBF3 * DLSL3	GER3167
	FFBU3L = MUB3 * ABS(FBU3)	GER3168
	FFBL3L = MUB3 * ABS(FBL3)	GER3169
	IF (ABS(FFBU3) - FFBUL3) 410, 400, 400	GER3170
400	TEST1 = FFBUL3 * S3D	GER3171
	IF (TEST1) 420, 410, 410	GER3172
410	DLSU3D = S3D	GER3173
	GO TO 430	GER3174
420	DLSU3D = 0.0	GER3175
	DLSU3 = - SIGN(FFBU3L / KBF3 , FFBUL3)	GER3176
	FFBU3 = - KBF3 * DLSU3	GER3177
430	IF (ABS(FFBL3) - FFEL3L) 450, 440, 440	GER3178
440	TEST2 = FFBL3 * S3D	GER3179
	IF (TEST2) 460, 450, 450	GER3180
450	DLSL3D = S3D	GER3181
	GO TO 550	GER3182
460	DLSL3D = 0.0	GER3183
	DLSL3 = - SIGN(FFBL3L / KBF3, FFBL3)	GER3184
	FFBL3 = - KBF3 * DLSL3	GER3185
550	IF (NSTYP3 - 2) 560, 570, 560	GER3186
560	FS3 = - (PA3 - 14.7) * AA3 - PH3 * (AH3 - AP3)	GER3187
1	+ PHS3 * (AHS3 - ANS3) + FFBUL3 + FFBL3	GER3188
	BETA3D = CD3 * AN3 * VEL3 - (AH3 - AP3) * S3D	GER3189
	GO TO 580	GER3190
570	FS3 = - (PA3 - 14.7) * AA3 - PH3 * (AH3 - AP3 - AHS3)	GER3191
1	+ PHS3 * (AHS3 - ANS3) + FFBUL3 + FFBL3	GER3192
	BETA3D = CD3 * AN3 * VEL3 - (AH3 - AP3) * S3D	GER3193
1	- ANS3 * CDS3 * VEL3	GER3194
580	IF (S3) 590, 600, 600	GER3195
590	FS3 = FS3 - KBG3 * S3 - CBG3 * S3D	GER3196
600	DO 610 I = 1, 3	GER3197
610	FAX3(I) = - MW3 * (ALG3(1,I) * ACCB(1) +	GER3198
1	ALG3(2,I) * ACCB(2) + ALG3(3,I) * ACCB(3) +	GER3199
2	ALG3(1,I) * (OMEGBD(2) * LAGXA3(3) - OMEGBD(3) * LAGXA3(2)) +	GER3200
3	ALG3(2,I) * (OMEGBD(3) * LAGXA3(1) - OMEGBD(1) * LAGXA3(3)) +	GER3201
4	ALG3(3,I) * (OMEGBD(1) * LAGXA3(2) - OMEGBD(2) * LAGXA3(1)) +	GER3202
5	XIA3D(I) * S3DD - 386.09 * GBAG3(3,I)) +	GER3203
6	FG3(1) * GBAG3(1,I) + FG3(2) * GBAG3(2,I) +	GER3204
7	FG3(3) * GBAG3(3,I)	GEP3205
	IF (NBE) 620, 660, 620	GER3206
620	DO 630 J = 1, 3	GER3207
	UBA3DD(J) = 0.0	GER3208
	DO 630 K = 1, NBE	GER3209
630	UBA3DD(J) = PBA3(J,K) * QBDD(K) + UBA3DD(J)	GER3210
	DO 650 I = 1, 3	GER3211
	F3B = 0.0	GER3212
	DO 640 K = 1, 3	GER3213
640	F3B = ALHG3(I,K) * UBA3DD(K) + F3B	GER3214
650	FAX3(I) = - MW3 * F3B + FAX3(I)	GER3215
660	IF (NGE3) 670, 700, 670	GER3216
670	DO 680 J = 1, 3	GER3217
	UGA3DD(J) = 0.0	GER3218

SOURCE DECK LISTING

	DO 680 K = 1, NGE3	GER3219
680	UGA3DD(J) = PGA3(J,K) * QG3DD(K) + UGA3DD(J)	GER3220
	DO 690 I = 1, 3	GER3221
690	FAX3(I) = - MW3 * UGA3DD(I) + FAX3(I)	GER3222
700	IF (MUB3) 710, 730, 710	GER3223
710	CALL TABSN1(TABL1(1,62), S3, BU3(1), NTB1(62))	GER3224
	CALL TABSN1(TABL1(1,63), S3, BU3(2), NTB1(63))	GER3225
	BU3(2) = - BU3(2)	GER3226
	CALL TABSN1(TABL1(1,64), S3, BU3(3), NTB1(64))	GER3227
	CALL TABSN1(TABL1(1,65), S3, BL3(1), NTB1(65))	GER3228
	CALL TABSN1(TABL1(1,66), S3, BL3(2), NTB1(66))	GER3229
	BL3(2) = - BL3(2)	GER3230
	CALL TABSN1(TABL1(1,67), S3, BL3(3), NTB1(67))	GER3231
	FBU3 = 0.0	GER3232
	FBL3 = 0.0	GER3233
	DO 720 I = 1, 3	GER3234
	FBU3 = BU3(I) * FAX3(I) + FBU3	GER3235
720	FBL3 = BL3(I) * FAX3(I) + FBL3	GER3236
730	RETURN	GER3237
	END	GER3238
	SUBROUTINE HOOK	HOKZ 1
	DIMENSION FH(3)	HOKZ 2
	COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),	HOKZ 3
1	NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)	HOKZ 4
	EQUIVALENCE (P(551), FH)	HOKZ 5
	FH(1) = 0.0	HOKZ 6
	FH(2) = 0.0	HOKZ 7
	FH(3) = 0.0	HOKZ 8
	RETURN	HOKZ 9
	END	HOKZ 10
	SUBROUTINE FOR CALCULATING THE ARRESTING HOOK FORCE	HOKS 1
	FOR SYMMETRICAL ARRESTMENT	HOKS 2
	SUBROUTINE HOOKS	HOKS 3
	COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),	HOKS 4
1	NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)	HOKS 5
	REAL MV1V1, LHV, LHV2, LH	HOKS 6
	DIMENSION XN(3), XH(3), LH(3), XHP0(3), GAMB(3,3),	HOKS 7
1	FH(3)	HOKS 8
	DIMENSION NTB1(110)	HOKS 9
	EQUIVALENCE (Y(1), T), (Y(5), D), (Y(6), S),	HOKS 10
1	(Y(7), V), (Y(12), THETR)	HOKS 11
	EQUIVALENCE (DYDX(5), DD)	HOKS 12
	EQUIVALENCE (P(3), XN), (P(131), XH), (P(134), LHV),	HOKS 13
1	(P(136), PHIHK0), (P(139), DBAR), (P(141), VS),	HOKS 14
2	(P(142), VHPTC), (P(144), RUNMAX), (P(151), MV1V1)	HOKS 15
	EQUIVALENCE (P(551), FH), (P(554), RUNOUT),	HOKS 16
1	(P(556), VH), (P(557), PHIHKR), (P(558), ALPHCR),	HOKS 17
2	(P(559), FH1)	HOKS 18
	EQUIVALENCE (P(571), GAMB)	HOKS 19
	EQUIVALENCE (NTEGER(56), NTB1)	HOKS 20
	IF (T) 10, 10, 40	HOKS 21
10	DO 20 I = 1, 3	HOKS 22

SOURCE DECK LISTING

20	LH(1) = XN(1) - XH(1)	HOKS 23
	AMASS = MV1V1	HOKS 24
	PHIHKR = PHIHK0 / 57.29578	HOKS 25
	SINH0 = SIN(PHIHKR)	HOKS 26
	COSH0 = COS(PHIHKR)	HOKS 27
	XHP0(1) = - LHV * SINH0	HOKS 28
	XHP0(2) = 0.0	HOKS 29
	XHP0(3) = LHV * COSH0	HOKS 30
	DDHP0 = 0.0	HOKS 31
	DO 30 I = 1, 3	HOKS 32
30	DDHP0 = (LH(1) + XHP0(1)) * GAMB(1,1) + DDHP0	HOKS 33
	DHP0 = D + DDHP0	HOKS 34
	DHPTC = DHP0 + DEAR	HOKS 35
	LHV2 = LHV **2	HOKS 36
	MHOOK = 1	HOKS 37
40	VH = V + LH(1) * GAMB(3,1) + LH(2) * GAMB(3,2)	HOKS 38
1	+ LH(3) * GAMB(3,3)	HOKS 39
	IF (MHOOK - 2) 50, 100, 120	HOKS 40
50	VHC = LHV * (- SINH0 * GAMB(3,1) + COSH0 * GAMB(3,3))	HOKS 41
	IF (VHC + VH + VHPTC) 80, 60, 60	HOKS 42
60	AA = (GAMB(3,1) / GAMB(3,3)) **2 + 1.0	HOKS 43
	BB = 2.0 * VH * GAMB(3,1) / GAMB(3,3) **2	HOKS 44
1	+ 2.0 * GAMB(3,1) * VHPTC / GAMB(3,3) **2	HOKS 45
	CC = (VH / GAMB(3,3)) **2 - LHV2	HOKS 46
1	+ 2.0 * VH * VHPTC / GAMB(3,3) **2	HOKS 47
2	+ VHPTC **2 / GAMB(3,3) **2	HOKS 48
	A = (- BB - SQRT(BB **2 - 4.0 * AA * CC)) /	HOKS 49
1	(2.0 * AA)	HOKS 50
	B = - (VH + VHPTC + A * GAMB(3,1)) / GAMB(3,3)	HOKS 51
	PHIHKR = ACOS(B / SQRT(A **2 + B **2))	HOKS 52
	DHP = D + (LH(1) - LHV * SIN(PHIHKR)) * GAMB(1,1)	HOKS 53
1	+ LH(2) * GAMB(1,2) + (LH(3) + LHV * COS(PHIHKR)) * GAMB(1,3)	HOKS 54
	IF (DHP - DHPTC - 1.0) 120, 120, 70	HOKS 55
70	VGCON = DD	HOKS 56
	MHOOK = 2	HOKS 57
	GO TO 100	HOKS 58
80	DHP = D + (LH(1) - LHV * SINH0) * GAMB(1,1)	HOKS 59
1	+ LH(2) * GAMB(1,2) + (LH(3) + LHV * COSH0) * GAMB(1,3)	HOKS 60
	IF (DHP - DHPTC - 1.0) 120, 90, 90	HOKS 61
90	MHOOK = 3	HOKS 62
	GO TO 110	HOKS 63
100	DH = D + LH(1) * GAMB(1,1) + LH(2) * GAMB(1,2)	HOKS 64
1	+ LH(3) * GAMB(1,3)	HOKS 65
	HYP = SQRT((DH - DHPTC)**2 + (-VH - VS) **2)	HOKS 66
	RUNOUT = HYP - LHV	HOKS 67
	RUNNON = RUNOUT / RUNMAX	HOKS 68
	CALL TABSN1(TABL1(1,110), RUNNON, FH1NON, NTB1(110))	HOKS 69
	FH1 = FH1NON * VGCON * VGCON * AMASS / RUNMAX	HOKS 70
	TANACR = (- VH - VS) / (DH - DHPTC)	HOKS 71
	ALPHCR = ATAN(TANACR)	HOKS 72
	PHIHKR = 1.570796 - ALPHCR + THETR	HOKS 73
	FH(1) = - FH1 * COS(ALPHCR)	HOKS 74

SOURCE DECK LISTING

	FH(2) = 0.0	HOKS 75
	FH(3) = FH1 * SIN(ALPHCR)	HOKS 76
	GO TO 120	HOKS 77
110	FH(1) = 0.0	HOKS 78
	FH(2) = 0.0	HOKS 79
	FH(3) = 0.0	HOKS 80
120	RETURN	HOKS 81
	END	HOKS 82
	SUBROUTINE FOR CALCULATING THE ARRESTING HOOK FORCE	HOKU 1
	FOR UNSYMMETRICAL ARRESTMENT	HOKU 2
	SUBROUTINE HOOKUS	HOKU 3
	COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),	HOKU 4
1	NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)	HOKU 5
	REAL MV1V1, LHV, LHP, LLP, LH, LHV2, LL, LR, LL1,	HOKU 6
1	KBAR, MUC	HOKU 7
	DIMENSION XN(3), XH(3), LH(3), XHP0(3), GAMB(3,3),	HOKU 8
1	FH(3)	HOKU 9
	DIMENSION NTB1(110)	HOKU 10
	EQUIVALENCE (Y(1), T)	HOKU 11
	EQUIVALENCE (Y(5), D), (Y(6), S), (Y(7), V)	HOKU 12
	EQUIVALENCE (DYDX(5), DD)	HOKU 13
	EQUIVALENCE (P(3), XN), (P(131), XH), (P(134), LHV),	HOKU 14
1	(P(135), LLP), (P(136), PHIHK0), (P(137), LHP), (P(138), KBAR),	HOKU 15
2	(P(139), DBAR), (P(140), BC), (P(141), VS), (P(142), VHPTC),	HOKU 16
3	(P(143), MUC), (P(144), RUNMAX), (P(151), MV1V1)	HOKU 17
	EQUIVALENCE (P(551), FH), (P(554), RUNOUT),	HOKU 18
1	(P(555), SH), (P(556), VH), (P(557), PHIHKR),	HOKU 19
2	(P(558), ALPHCR), (P(559), FH1)	HOKU 20
	EQUIVALENCE (P(571), GAMB)	HOKU 21
	EQUIVALENCE (NTEGER(56), NTB1)	HOKU 22
	IF (T) 10, 10, 40	HOKU 23
10	DO 20 I = 1, 3	HOKU 24
20	LH(I) = XN(I) - XH(I)	HOKU 25
	AMASS = MV1V1	HOKU 26
	PHIHKR = PHIHK0 / 57.29578	HOKU 27
	SINH0 = SIN(PHIHKR)	HOKU 28
	COSH0 = COS(PHIHKR)	HOKU 29
	XHP0(1) = - LHV * SINH0	HOKU 30
	XHP0(2) = 0.0	HOKU 31
	XHP0(3) = LHV * COSH0	HOKU 32
	DDHP0 = 0.0	HOKU 33
	DO 30 I = 1, 3	HOKU 34
30	DDHP0 = (LH(I) + XHP0(I)) * GAMB(1,I) + DDHP0	HOKU 35
	DHP0 = D + DDHP0	HOKU 36
	DHPTC = DHP0 + DBAR	HOKU 37
	LHV2 = LHV **2	HOKU 38
	ERRO1 = BC * 0.00025	HOKU 39
	ERRO2 = ERRO1	HOKU 40
	GUESS1 = BC * 0.005	HOKU 41
	GUESS2 = GUESS1	HOKU 42
	MHOOK = 1	HOKU 43
40	VH = V + LH(1) * GAMB(3,1) + LH(2) * GAMB(3,2)	HOKU 44

SOURCE DECK LISTING

```

1  + LH(3) * GAMB(3,3)
      IF (MHOOK - 2) 50, 100, 350
50      VHC = LHV * (- SINHO * GAMB(3,1) + COSHO * GAMB(3,3))
      IF (VHC + VH + VHPTC) 80, 60, 60
60      AA = (GAMB(3,1) / GAMB(3,3)) **2 + 1.0
      BB = 2.0 * VH * GAMB(3,1) / GAMB(3,3) **2
1  + 2.0 * GAMB(3,1) * VHPTC / GAMB(3,3) **2
      CC = (VH / GAMB(3,3)) **2 - LHV2
1  + 2.0 * VH * VHPTC / GAMB(3,3) **2
2  + VHPTC **2 / GAMB(3,3) **2
      A = (- BB - SQRT(BB **2 - 4.0 * AA * CC)) /
1  (2.0 * AA)
      B = - (VH + VHPTC + A * GAMB(3,1)) / GAMB(3,3)
      PHIHKR = ACOS(B / SQRT(A **2 + B **2))
      DHP = D + (LH(1) - LHV * SIN(PHIHKR)) * GAMB(1,1)
1  + LH(2) * GAMB(1,2) + (LH(3) + LHV * COS(PHIHKR)) * GAMB(1,3)
      IF (DHP - DHPTC - 1.0) 350, 350, 70
70      VGCON = DD
      D1 = LH(1) + A
      D2 = LH(2)
      D3 = LH(3) + B
      YHP = S + D1 * GAMB(2,1) + D2 * GAMB(2,2)
1  + D3 * GAMB(2,3)
      KBAR = 2.0 * YHP
      LL1 = BC + KBAR / 2.0
      MHOOK = 2
      B11 = LLP * COS(PHIHKR)
      GO TO 100
80      DHP = D + (LH(1) - LHV * SINHO) * GAMB(1,1)
1  + LH(2) * GAMB(1,2) + (LH(3) + LHV * COSHO) * GAMB(1,3)
      IF (DHP - DHPTC - 1.0) 350, 90, 90
90      MHOOK = 3
      GO TO 330
100      DH = D + LH(1) * GAMB(1,1) + LH(2) * GAMB(1,2)
1  + LH(3) * GAMB(1,3)
      SH = S + LH(1) * GAMB(2,1) + LH(2) * GAMB(2,2)
1  + LH(3) * GAMB(2,3)
      BLOW = -12000.0
      BUP = 12000.0
      DO 210 I = 1, 100
      B1 = B11
      A1 = -SQRT(ABS(LLP **2 - B1 **2))
      B2 = - VH - A1 * GAMB(3,1) - B1 * GAMB(3,3) - VS
      A2 = - (DH - DHPTC) - A1 * GAMB(1,1) -
1  B1 * GAMB(1,3)
      B11 = (GAMB(1,3) * A1 * A2 + GAMB(3,3) * A1 * B2)
1  / (GAMB(1,1) * A2 + GAMB(3,1) * B2)
      IF (ABS(B1 - B11) - ERRO1) 230, 230, 110
110      IF (RUNOUT - 60.0) 120, 120, 200
120      IF (B1 - B11) 130, 130, 140
130      BUPT = B11
      BLOWT = B1

```

HOKU 45
HOKU 46
HOKU 47
HOKU 48
HOKU 49
HOKU 50
HOKU 51
HOKU 52
HOKU 53
HOKU 54
HOKU 55
HOKU 56
HOKU 57
HOKU 58
HOKU 59
HOKU 60
HOKU 61
HOKU 62
HOKU 63
HOKU 64
HOKU 65
HOKU 66
HOKU 67
HOKU 68
HOKU 69
HOKU 70
HOKU 71
HOKU 72
HOKU 73
HOKU 74
HOKU 75
HOKU 76
HOKU 77
HOKU 78
HOKU 79
HOKU 80
HOKU 81
HOKU 82
HOKU 83
HOKU 84
HOKU 85
HOKU 86
HOKU 87
HOKU 88
HOKU 89
HOKU 90
HOKU 91
HOKU 92
HOKU 93
HOKU 94
HOKU 95
HOKU 96

SOURCE DECK LISTING

	GO TO 150	HOKU 97
140	BUPT = B1	HOKU 98
	BLOWT = B11	HOKU 99
150	IF (BUPT - BUP) 160, 160, 170	HOKU100
160	BUP = BUPT	HOKU101
170	IF (BLOWT - BLOW) 190, 180, 180	HOKU102
180	BLOW = BLOWT	HOKU103
190	B11 = (BUP + BLOW) / 2.0	HOKU104
	GO TO 210	HOKU105
200	B11 = (2.0 * B1 + B11) / 3.0	HOKU106
210	CONTINUE	HOKU107
	WRITE (6,220) B11, B1	HOKU108
220	FORMAT (10X, 31HERROR DETECTED IN HOOKUS, B11 =, E20.9,	HOKU109
1	6H B1 =, E20.9)	HOKU110
230	PHIHKR = ACOS(B1 / SQRT(A1 **2 + B1 **2))	HOKU111
	XIH = SQRT (A2 **2 + B2 **2)	HOKU112
	ETAH = SH + A1 * GAMB(2,1) + B1 * GAME(2,3)	HOKU113
	CALL ITER1(LL1, BC, ETAH, XIH, LHP, GUESS1, KBAR,	HOKU114
1	ERRO2, ALPHLR, LL, ALPHRR, COSALR, SINALR, SINARR, EPSIH,	HOKU115
2	EPSIC, LR)	HOKU116
	EXPT = EXP(MUC * (ALPHLR + ALPHRR))	HOKU117
	RUNOUT = LL * SINALR	HOKU118
	RUNNON = RUNOUT / RUNMAX	HOKU119
	CALL TABSN1(TABL1(1,110), RUNNON, FH1NON, NTB1(110))	HOKU120
	FH1 = FH1NON * VGCON * VGCON * AMASS / RUNMAX	HOKU121
	IF (EPSIH) 250, 250, 240	HOKU122
240	TR = FH1 / (EXPT * SIN(ALPHLR) + SIN(ALPHRR))	HOKU123
	TL = TR * EXPT	HOKU124
	GO TO 260	HOKU125
250	TL = FH1 / (SIN(ALPHLR) + EXPT * SIN(ALPHRR))	HOKU126
	TR = TL * EXPT	HOKU127
260	FHM = SQRT(TR **2 + TL **2 + 2.0 * TR * TL	HOKU128
1	* COS(2.0 * EPSIC))	HOKU129
	SINEHL = (TL - TR) * SIN(EPSIC) / FHM	HOKU130
	EPSHLR = ABS(ATAN(SINEHL / SQRT(1.0 - SINEHL **2)))	HOKU131
	IF (ABS(EPSIH) - EPSHLR) 310, 310, 270	HOKU132
270	IF (EPSIH) 280, 280, 290	HOKU133
280	EPSIH = - EPSHLR	HOKU134
	GO TO 300	HOKU135
290	EPSIH = EPSHLR	HOKU136
300	CALL ITER2(LL1, BC, ETAH, XIH, LHP, GUESS2, KBAR,	HOKU137
1	ERRO2, ALPHLR, LL, ALPHRR, COSALR, SINALR, SINARR, EPSIH,	HOKU138
2	EPSIC, LR)	HOKU139
	GO TO 320	HOKU140
310	SINAER = SIN(ALPHLR + EPSIC - EPSIH)	HOKU141
	COSAER = COS(ALPHLR + EPSIC - EPSIH)	HOKU142
	FHM = FH1 / SINAER	HOKU143
	FHY = FHM * COSAER	HOKU144
	COSARR = COS(ALPHRR)	HOKU145
	H3 = FH1 * COSARR + FHY * SINAER	HOKU146
	H4 = COSARR * SINALR + COSALR * SINARR	HOKU147
	TL = H3 / H4	HOKU148

SOURCE DECK LISTING

320	TR = FH1 - TL * SINALR) / SINARR	HOKU149
	ALPHCR = ATAN(- B2 / A2)	HOKU150
	SINACR = SIN(ALPHCR)	HOKU151
	COSACR = COS(ALPHCR)	HOKU152
	SINAER = SIN(ALPHLR + EPSIC - EPSIH)	HOKU153
	COSAER = COS(ALPHLR + EPSIC - EPSIH)	HOKU154
	FH(1) = - SINAER * COSACR * FHM	HOKU155
	FH(2) = - COSAER * FHM	HOKU156
	FH(3) = SINAER * SINACR * FHM	HOKU157
	GO TO 350	HOKU158
330	FH(1) = 0.0	HOKU159
	FH(2) = 0.0	HOKU160
	FH(3) = 0.0	HOKU161
350	RETURN	HOKU162
	END	HOKU163
	SUBROUTINE ITER1(ALL1, ABC, AETAH, AXIH, ALHP,	ITER1 1
1	AUESS1, AKBAR, AERRO2, ALFLR, ALL, ALFRR, AOSALR, AINALR,	ITER1 2
2	AINARR, APSIH, APSIC, ALR)	ITER1 3
	DOUBLE PRECISION LL1, BC, ETAH, XIH, LHP, GUESS1,	ITER1 4
1	KBAR, ERRO2, ALPHLR, ALPHRR, COSALR, SINALR, SINARR	ITER1 5
	DOUBLE PRECISION LL, LEN, AAA, BBB, CCC, AQ, BQ,	ITER1 6
1	CQ, EASY, TANALR, TANARR, LR, AJANE	ITER1 7
	DOUBLE PRECISION EPSIC, EPSIH, SB, CB, STH, CTH,	ITER1 8
1	SEH, CEH	ITER1 9
	LL1 = ALL1	ITER1 10
	BC = ABC	ITER1 11
	ETAH = AETAH	ITER1 12
	XIH = AXIH	ITER1 13
	LHP = ALHP	ITER1 14
	GUESS1 = AUESS1	ITER1 15
	KBAR = AKBAR	ITER1 16
	ERRO2 = AERRO2	ITER1 17
	AJANE = 1.0D0	ITER1 18
	DO 60 I = 1, 100	ITER1 19
	LL = LL1	ITER1 20
	LEN = DSQRT((BC + ETAH) **2 + XIH **2)	ITER1 21
	IF (LEN - (LL1 + LHP)) 20, 10, 10	ITER1 22
10	LL = LEN - LHP + GUESS1 / AJANE	ITER1 23
	AJANE = AJANE + 1.0D0	ITER1 24
20	AAA = 2.0D0 * (BC + ETAH) * LL	ITER1 25
	BBB = 2.0D0 * XIH * LL	ITER1 26
	CCC = LHP **2 - XIH **2 - (BC + ETAH) **2 - LL **2	ITER1 27
	AQ = AAA **2 + BBB **2	ITER1 28
	BQ = 2.0D0 * BBB * CCC	ITER1 29
	CQ = CCC **2 - AAA **2	ITER1 30
	EASY = BQ **2 - 4.0D0 * AQ * CQ	ITER1 31
	IF (EASY) 30, 50, 50	ITER1 32
30	WRITE (6,40) EASY	ITER1 33
40	FORMAT (10X, 31HERROR DETECTED IN ITER1, EASY =, D20.10)	ITER1 34
	EASY = 0.0D0	ITER1 35
50	SINALR = (-BQ - DSQRT(EASY)) / (2.0D0 * AQ)	ITER1 36
	COSALR = DSQRT(1.0D0 - SINALR **2)	ITER1 37

SOURCE DECK LISTING

	TANALR = SINALR / COSALR	ITR1 38
	ALPHLR = DATAN(TANALR)	ITR1 39
	TANARR = SINALR / ((2.0D0 * BC / LL) - COSALR)	ITR1 40
	ALPHRR = DATAN(TANARR)	ITR1 41
	SINARR = DSIN(ALPHRR)	ITR1 42
	LR = LL * SINALR / SINARR	ITR1 43
	LL1 = KBAR + LR	ITR1 44
	IF (DABS(LL1 - LL) - ERRO2) 80, 80, 60	ITR1 45
60	LL1 = (LL1 + 2.D0 * LL) / 3.0D0	ITR1 46
	WRITE (6,70) LL1, LL	ITR1 47
70	FORMAT (10X, 30HERROR DETECTED IN ITER1, LL1 =, D20.10,	ITR1 48
1	6H LL =, D20.10)	ITR1 49
80	EPSIC = (3.141592653589793D0 - ALPHLR - ALPHRR)	ITR1 50
1	/ 2.0D0	ITR1 51
	SB = (XIH - LL * SINALR) / LHP	ITR1 52
	CB = (BC + ETAH - LL * COSALR) / LHP	ITR1 53
	STH = DSIN(ALPHLR + EPSIC)	ITR1 54
	CTH = DCOS(ALPHLR + EPSIC)	ITR1 55
	SEH = CB * STH - SB * CTH	ITR1 56
	CEH = CB * CTH + SB * STH	ITR1 57
	EPSIH = DATAN(SEH / CEH)	ITR1 58
	APSIH = EPSIH	ITR1 59
	APSIC = EPSIC	ITR1 60
	ALFLR = ALPHLR	ITR1 61
	ALFRR = ALPHRR	ITR1 62
	AOSALR = COSALR	ITR1 63
	AINALR = SINALR	ITR1 64
	AINARR = SINARR	ITR1 65
	ALL1 = LL1	ITR1 66
	ALL = LL	ITR1 67
	ALR = LR	ITR1 68
	RETURN	ITR1 69
	END	ITR1 70
	SUBROUTINE ITER2(ALL1, ABC, AETAH, AXIH, ALHP,	ITR2 1
1	AUESS2, AKBAR, AERRO2, ALFLR, ALL, ALFRR, AOSALR, AINALR,	ITR2 2
2	AINARR, APSIH, APSIC, ALR)	ITR2 3
	DOUBLE PRECISION LL1, BC, ETAH, XIH, LHP, GUESS2,	ITR2 4
1	KBAR, ERRO2, ALPHLR, ALPHRR, COSALR, SINALR, SINARR, LL,	ITR2 5
2	LEN, AAA, BBB, CCC, AQ, BQ, CQ, EASY, TANARR, LR,	ITR2 6
3	EPSIH, EPSIC, AJANE, H1, H2	ITR2 7
	LL1 = ALL1	ITR2 8
	BC = ABC	ITR2 9
	ETAH = AETAH	ITR2 10
	XIH = AXIH	ITR2 11
	LHP = ALHP	ITR2 12
	GUESS2 = AUESS2	ITR2 13
	ERRO2 = AERRO2	ITR2 14
	EPSIH = APSIH	ITR2 15
	AJANE = 1.0D0	ITR2 16
	DO 60 I = 1, 100	ITR2 17
	LL = LL1	ITR2 19
	LEN = DSQRT((BC + ETAH) **2 + XIH **2)	ITR2 20

SOURCE DECK LISTING

	IF (LL - LHP - LL1) 20, 10, 10	ITR2 21
10	LL = LEN - LHP + GUESS2 / AJANE	ITR2 22
	AJANE = AJANE + 1.0D0	ITR2 23
20	AAA = 2.0D0 * (BC + ETAH) * LL	ITR2 24
	BBB = 2.0D0 * XIH * LL	ITR2 25
	CCC = LHP **2 - XIH **2 - (BC + ETAH) **2 - LL **2	ITR2 26
	AQ = AAA **2 + BBB **2	ITR2 27
	BQ = 2.0D0 * BEL * CCC	ITR2 28
	CQ = CCC **2 - AAA **2	ITR2 29
	EASY = BQ **2 - 4.0D0 * AQ * CQ	ITR2 30
	IF (EASY) 30, 30, 50	ITR2 31
30	WRITE (6,40) EASY	ITR2 32
40	FORMAT (10X, 31HERROR DETECTED IN ITER2, EASY =, D20.10)	ITR2 321
	EASY = 0.0D0	ITR2 322
50	SINALR = (-BQ - DSQRT(EASY)) / (2.0D0 * AQ)	ITR2 33
	COSALR = DSQRT(1.0D0 - SINALR **2)	ITR2 34
	ALPHLR = DATAN(SINALR / COSALR)	ITR2 35
	TANARR = SINALR / ((2.0D0 * BC / LL) - COSALR)	ITR2 36
	ALPHRR = DATAN(TANARR)	ITR2 37
	SINARR = DSIN(ALPHRR)	ITR2 38
	LR = LL * SINALR / SINARR	ITR2 39
	EPSIC = (3.141592653589793D0 - ALPHLR - ALPHRR)	ITR2 40
1	/ 2.0D0	ITR2 41
	H1 = XIH - LHP * DSIN(ALPHLR + EPSIC - EPSIH)	ITR2 42
	H2 = BC + ETAH - LHP * DCOS(ALPHLR + EPSIC - EPSIH)	ITR2 43
	LL1 = DSQRT(H1 * H1 + H2 * H2)	ITR2 44
	IF (DABS(LL1 - LL) - ERRO2) 80, 80, 60	ITR2 45
60	LL1 = (LL1 + LL) / 2.0D0	ITR2 46
	WRITE (6,70) LL1, LL	ITR2 461
70	FORMAT (10X, 30HERROR DETECTED IN ITER2, LL1 =, D20.10,	ITR2 462
1	6H LL =, D20.10)	ITR2 463
80	KBAR = LL1 - LR	ITR2 47
	ALL1 = LL1	ITR2 48
	AKBAR = KBAR	ITR2 49
	ALFLR = ALPHLR	ITR2 50
	ALFRR = ALPHRR	ITR2 51
	ALL = LL	ITR2 52
	APSIC = EPSIC	ITR2 53
	AINALR = SINALR	ITR2 531
	AOSALR = COSALR	ITR2 54
	AINARR = SINARR	ITR2 55
	ALR = LR	ITR2 56
	RETURN	ITR2 57
	END	ITR2 58
	SUBROUTINE FOR CALCULATING AERODYNAMIC FORCES AND MOMENTS	AERO 1
	SUBROUTINE AERO	AERO 2
	COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),	AERO 3
1	NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)	AERO 4
	REAL MP, LMOM, NMOM	AERO 5
	DIMENSION FP(3), MP(3), GAMB(3,3), VB(3)	AERO 6
	DIMENSION CIQA(8), CIQO(8), FPQB(8)	AERO 7
	EQUIVALENCE (P(164), VWIND), (P(165), RHO),	AERO 8

SOURCE DECK LISTING

```

1 (P(166), S), (P(167), CBAR), (P(168), B), (P(169), DELTA), AERO 9
2 (P(170), CXAL), (P(171), CZAL), (P(172), CYBT), (P(173), CXDL), AERO 10
3 (P(174), CZDL), (P(175), CMAL), (P(176), CLBT), (P(177), CNBT), AERO 11
4 (P(178), CMDL), (P(179), CX0), (P(180), CZ0), (P(181), CM0), AERO 12
5 (P(182), ALFREF), (P(183), DELREF) AERO 13
    EQUIVALENCE (P(209), CIQA), (P(225), CIQ0) AERO 14
    EQUIVALENCE (P(476), FP), (P(479), MP), AERO 15
1 (P(482), FPQB) AERO 16
    EQUIVALENCE (P(561), ALPHA), (P(562), BETA), AERO 17
1 (P(563), VAIR) AERO 18
    EQUIVALENCE (P(571), GAMB) AERO 19
    EQUIVALENCE (NTEGER(15), NBE) AERO 20
    EQUIVALENCE (Y(2), VB) AERO 21
    VBA1 = VB(1) + GAMB(1,1) * VWIND AERO 22
    VBA2 = VB(2) + GAMB(1,2) * VWIND AERO 23
    VBA3 = VB(3) + GAMB(1,3) * VWIND AERO 24
    VAIR2 = VBA1 **2 + VBA2 **2 + VBA3 **2 AERO 25
    VAIR = SQRT(VAIR2) AERO 26
    ALPHA = ATAN(VBA3 / VBA1) * 57.29578 AERO 27
    BETA = ATAN(VBA2 / VBA1) * 57.29578 AERO 28
    DPRS = 0.5 * RHO * S * VAIR2 AERO 29
    DALF = ALPHA - ALFREF AERO 30
    DDEL = DELTA - DELREF AERO 31
    Z = DPRS * (CZ0 + CZAL * DALF + CZDL * DDEL) AERO 32
    X = DPRS * (CX0 + CXAL * DALF + CXDL * DDEL) AERO 33
    FP(2) = DPRS * CYBT * BETA AERO 34
    LMOM = DPRS * B * CLBT * BETA AERO 35
    MP(2) = DPRS * CBAR * (CM0 + CMAL * DALF +
1 CMDL * DDEL) AERO 36
    NMOM = DPRS * B * CNBT * BETA AERO 37
    SINA = SIN(ALPHA / 57.29578) AERO 38
    COSA = COS(ALPHA / 57.29578) AERO 39
    FP(1) = X * COSA - Z * SINA AERO 40
    FP(3) = Z * COSA + X * SINA AERO 41
    MP(1) = LMOM * COSA - NMOM * SINA AERO 42
    MP(3) = NMOM * COSA + LMOM * SINA AERO 43
    DO 10 I = 1, NBE AERO 44
    FPQB(I) = DPRS * (CIQA(I) * DALF + CIQ0(I)) AERO 45
    RETURN AERO 46
    END AERO 47
    AERO 48
SUBROUTINE FOR NUMBERING THE PAGES AND IDENTIFYING THE RUN
SUBROUTINE PAGEHD
COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),
1 NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)
EQUIVALENCE (NTEGER(1), IDENT), (NTEGER(49), NPAGE)
WRITE (6,10) IDENT, NPAGE
10 FORMAT (17H1 RUN NO. , I5, 20X, 8HPAGE NO. , I5)
RETURN
END
SUBROUTINE FOR STRAIGHT LINE INTERPOLATION IN A SINGLE
TABLE LOOK UP
SUBROUTINE TABSN1(TABLE, XARG, AMP, NTAB)

```


SOURCE DECK LISTING

	DIMENSION TABLE (4400)	TABS 4
	DO 10 I = 1, NTAB	TABS 5
	IF (TABLE(I) - XARG) 10, 20, 20	TABS 6
10	CONTINUE	TABS 7
	I = NTAB	TABS 8
20	IF (I - 1) 30, 30, 40	TABS 9
30	I = 2	TABS 10
40	NTAB1 = NTAB + 1	TABS 11
	DIV = TABLE(I) - TABLE(I-1)	TABS 12
	IF (DIV) 60, 50, 60	TABS 12
50	SLOPE = 0.0	TABS 13
	GO TO 70	TABS 14
60	SLOPE = (TABLE(NTAB1) - TABLE(NTAB1-1)) / DIV	TABS 15
70	AMP = SLOPE * (XARG - TABLE(I-1))	TABS 16
1	+ TABLE(NTAB1-1)	TABS 17
	RETURN	TABS 18
	END	TABS 19
	SUBROUTINE FOR STRAIGHT LINE INTERPOLATION IN A DOUBLE	DTAB 1
	TABLE LOOK UP	DTAB 2
	SUBROUTINE TABDB2(TABLE, X1ARG, X2ARG, AMP,	DTAB 3
1	NTAB1, NTAB2)	DTAB 4
	DIMENSION TABLE (125)	DTAB 5
	DO 10 I = 1, NTAB1	DTAB 6
	IF (TABLE(I) - X1ARG) 10, 20, 20	DTAB 7
10	CONTINUE	DTAB 8
	I = NTAB1	DTAB 9
20	IF (I - 1) 30, 30, 40	DTAB 10
30	I = 2	DTAB 11
40	NTBP1 = NTAB1 + 1	DTAB 12
	NN12 = NTAB1 + NTAB2	DTAB 13
	DO 50 J = NTBP1, NN12	DTAB 14
	IF (TABLE(J) - X2ARG) 50, 60, 60	DTAB 15
50	CONTINUE	DTAB 16
	J = NN12	DTAB 17
60	IF (J - NTBP1) 70, 70, 80	DTAB 18
70	J = NTAB1 + 2	DTAB 19
80	N22 = NN12 + (J - NTAB1 - 1) * NTAB1 + 1	DTAB 20
	N12 = N22 - NTAB1	DTAB 21
	N21 = N22 - 1	DTAB 22
	N11 = N21 - NTAB1	DTAB 23
	DIV = (TABLE(I) - TABLE(I-1))	DTAB 24
	IF (DIV) 100, 90, 100	DTAB 25
90	SLOPX1 = 0.0	DTAB 26
	GO TO 110	DTAB 27
100	SLOPX1 = (X1ARG - TABLE(I-1)) / DIV	DTAB 28
110	DIV = (TABLE(J) - TABLE(J-1))	DTAB 29
	IF (DIV) 130, 120, 130	DTAB 30
120	SLOPX2 = 0.0	DTAB 31
	GO TO 140	DTAB 32
130	SLOPX2 = (X2ARG - TABLE(J-1)) / DIV	DTAB 33
140	ANS1 = SLOPX2 * (TABLE(N21) - TABLE(N11))	DTAB 34
1	+ TABLE(N11)	DTAB 35

SOURCE DECK LISTING

	ANS2 = SLOPX2 * (TABLE(N22) - TABLE(N12))	DTAB 36
1	+ TABLE(N12)	DTAB 37
	AMP = SLOPX1 * (ANS2 - ANS1) + ANS1	DTAB 38
	RETURN	DTAB 39
	END	DTAB 40
	SUBROUTINE GAUSS2(N, M, EP, A, X, KER)	GAUS 1
	DIMENSION A(15,16), X(15,1)	GAUS 2
	NPM = N + M	GAUS 3
	DO 100 L = 1, N	GAUS 4
	KP = 0	GAUS 5
	Z = 0.0	GAUS 6
	DO 20 K = L, N	GAUS 7
	IF (Z - ABS(A(K,L))) 10, 20, 20	GAUS 8
10	Z = ABS(A(K,L))	GAUS 9
	KP = K	GAUS 10
20	CONTINUE	GAUS 11
	IF (L - KP) 30, 50, 50	GAUS 12
30	DO 40 J = L, NPM	GAUS 13
	Z = A(L,J)	GAUS 14
	A(L,J) = A(KP,J)	GAUS 15
40	A(KP,J) = Z	GAUS 16
50	IF (ABS(A(L,L)) - EP) 150, 150, 60	GAUS 17
60	IF (L - N) 70, 110, 110	GAUS 18
70	LP1 = L + 1	GAUS 19
	DO 100 K = LP1, N	GAUS 20
	IF (A(K,L)) 80, 100, 80	GAUS 21
80	RATIO = A(K,L) / A(L,L)	GAUS 22
	DO 90 J = LP1, NPM	GAUS 23
90	A(K,J) = A(K,J) - RATIO * A(L,J)	GAUS 24
100	CONTINUE	GAUS 25
110	DO 140 I = 1, N	GAUS 26
	II = N + 1 - I	GAUS 27
	DO 140 J = 1, M	GAUS 28
	JPN = J + N	GAUS 29
	S = 0.0	GAUS 30
	IF (II - N) 120, 140, 140	GAUS 31
120	IIP1 = II + 1	GAUS 32
	DO 130 K = IIP1, N	GAUS 33
130	S = S + A(II,K) * X(K,J)	GAUS 34
140	X(II,J) = (A(II,JPN) - S) / A(II,II)	GAUS 35
	KER = 1	GAUS 36
	GO TO 160	GAUS 37
150	KER = 2	GAUS 38
160	CONTINUE	GAUS 39
	RETURN	GAUS 40
	END	GAUS 41
	INTEGRATION SUBROUTINE FOR FOUR POINT RUNGE KUTTA	RK2 1
	SUBROUTINE NTGRTE	RK2 2
	COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),	RK2 3
1	NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)	RK2 4
	DIMENSION D(70), DD(70)	RK2 5
	EQUIVALENCE (NTEGER(13), NEQ)	RK2 6

SOURCE DECK LISTING

	CALCULATE THE DELTA Y(I) FOR THE FIRST STEP	RK2	7
10	CALL DYDXS	RK2	8
	DO 20 I = 1, NEQ	RK2	9
	Q(I) = Y(I)	RK2	10
	D(I) = DYDX(I) * P(1) * 0.5	RK2	11
20	CONTINUE	RK2	12
	WRITE THE OUTPUT OF THE INTEGRATION	RK2	13
	CALL OUTPUT	RK2	14
	CALCULATE THE Y(I) FOR THE FIRST STEP	RK2	15
	DO 30 I = 1, NEQ	RK2	16
	Y(I) = Y(I) + D(I)	RK2	17
30	CONTINUE	RK2	18
	CALL DYDXS	RK2	19
	CALCULATE THE DELTA Y(I) AND Y(I) FOR THE SECOND STEP	RK2	20
	DO 40 I = 1, NEQ	RK2	21
	DD(I) = DYDX(I) * P(1) * 0.5	RK2	22
	Y(I) = Q(I) + DD(I)	RK2	23
40	CONTINUE	RK2	24
	CALL DYDXS	RK2	25
	CALCULATE THE DELTA Y(I) AND Y(I) FOR THE THIRD STEP	RK2	26
	DO 50 I = 1, NEQ	RK2	27
	DDD = DYDX(I) * P(1)	RK2	28
	Y(I) = Q(I) + DDD	RK2	29
	Q(I) = 3.33333333333333E-1 * D(I)	RK2	30
1	+ 6.66666666666667E-1 * DD(I) + 3.33333333333333E-1 * DDD + Q(I)	RK2	31
50	CONTINUE	RK2	32
	CALL DYDXS	RK2	33
	CALCULATE THE DELTA Y(I) FOR THE FOURTH STEP	RK2	34
	DO 60 I = 1, NEQ	RK2	35
	DDDD = DYDX(I) * P(1)	RK2	36
60	Y(I) = Q(I) + 1.66666666666667E-1 * DDDD	RK2	37
	PROCEED WITH THE INTEGRATION	RK2	38
	GO TO 10	RK2	39
	END	RK2	40
	SUBROUTINE FOR CONTROL OF OUTPUT OF DIFFERENTIAL EQUATION	OUTP	1
	ROUTINE	OUTP	2
	SUBROUTINE OUTPUT	OUTP	3
	COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),	OUTP	4
1	NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)	OUTP	5
	EQUIVALENCE (NTEGER(1), IDENT), (NTEGER(12), NTSKIP),	OUTP	6
1	(NTEGER(48), NZERO), (NTEGER(49), NPAGE), (NTEGER(50), NLINE),	OUTP	7
2	(NTEGER(51), NSKIP), (NTEGER(53), NPRT)	OUTP	8
	CHECK FOR INTEGRATION END AND PRINTING ON THIS STEP	OUTP	9
	IF (Y(1) - P(2)) 20, 10, 10	OUTP	10
10	NPRT = 1	OUTP	11
	GO TO 80	OUTP	12
20	IF (NSKIP - NTSKIP) 30, 40, 40	OUTP	13
30	NSKIP = NSKIP + 1	OUTP	14
	GO TO 100	OUTP	15
	CHECK FOR A NEW PAGE REQUIREMENT	OUTP	16
40	IF (NLINE - 55) 60, 50, 50	OUTP	17
50	NLINE = 0	OUTP	18

SOURCE DECK LISTING

60	NLINE = NLINE + 1	OUTP 19
	IF (NLINE - 55) 80, 70, 70	OUTP 20
70	NPRT = 1	OUTP 21
80	CALL OUTAID	OUTP 22
	NSKIP = 0	OUTP 23
	RETURN CONTROL TO GUIDE AT END OF INTEGRATION	OUTP 24
	IF (Y(1) - P(2)) 100, 90, 90	OUTP 25
90	NZERO = NZERO + 1	OUTP 26
	CALL GUIDE	OUTP 27
100	RETURN	OUTP 28
	END	OUTP 29
	SUBROUTINE FOR PRINTING RESULTS OF ARRESTED LANDING ANALYSIS	OUTA 1
	SUBROUTINE OUTAID	OUTA 2
	COMMON Y(70), DYDX(70), FIRSTY(70), P(2000),	OUTA 3
1	NTEGER(300), TABL1(40,110), TABL2(125,1), Q(70)	OUTA 4
	REAL MP(3)	OUTA 5
	DIMENSION SAV1(55,13), SAV2(55,13), SAV3(55,13),	OUTA 6
1	SAV4(55,13), SAV5(55,13), SAV6(55,13), SAV7(55,13),	OUTA 7
2	SAV8(55,13), SAV9(55,13), SAV10(55,13), SAV11(55,13)	OUTA 8
	DIMENSION SAV12(55,13)	OUTA 9
	DIMENSION VBD(3), VB(3), OMEGBD(3), OMEGB(3),	OUTA 10
1	QG1DD(2), QG1D(2), QG1(2), QG2DD(2), QG2D(2), QG2(2),	OUTA 11
2	QG3DD(2), QG3D(2), QG3(2), QBDD(8), QBD(8), QB(8), FG1H(3),	OUTA 12
3	FAX1(3), FG2H(3), FAX2(3), FG3H(3), FAX3(3), FH(3),	OUTA 13
4	FP(3)	OUTA 14
	EQUIVALENCE (Y(1), T), (Y(2), VB), (Y(5), D),	OUTA 15
1	(Y(6), S), (Y(7), V), (Y(8), OMEGB), (Y(11), PHIR),	OUTA 16
2	(Y(12), THETR), (Y(13), PSIR), (Y(14), S1D), (Y(15), S2D),	OUTA 17
3	(Y(16), S3D), (Y(17), S1), (Y(18), S2), (Y(19), S3),	OUTA 18
4	(Y(20), OMW1), (Y(21), OMW2), (Y(22), OMW3), (Y(23), BETA1),	OUTA 19
5	(Y(24), BETA2), (Y(25), BETA3), (Y(26), BTAS1), (Y(27), BTAS2),	OUTA 20
6	(Y(28), BTAS3), (Y(29), DLSU1), (Y(30), DLSU2), (Y(31), DLSU3),	OUTA 21
7	(Y(32), DLSSL1), (Y(33), DLSSL2), (Y(34), DLSSL3), (Y(35), QG1D),	OUTA 22
8	(Y(37), QG2D), (Y(39), QG3D), (Y(41), QG1), (Y(43), QG2),	OUTA 23
9	(Y(45), QG3), (Y(47), QBD), (Y(55), QB), (Y(63), OMG1D),	OUTA 24
1	(Y(64), THTG1R)	OUTA 25
	EQUIVALENCE (DYDX(2), VBD), (DYDX(5), DD),	OUTA 26
1	(DYDX(6), SD), (DYDX(7), VD), (DYDX(8), OMEGBD),	OUTA 27
2	(DYDX(11), PHIRD), (DYDX(12), THETRD), (DYDX(13), PSIRD),	OUTA 28
3	(DYDX(14), S1DD), (DYDX(15), S2DD), (DYDX(16), S3DD),	OUTA 29
4	(DYDX(17), SS1D), (DYDX(18), SS2D), (DYDX(19), SS3D),	OUTA 30
5	(DYDX(20), OMW1D), (DYDX(21), OMW2D), (DYDX(22), OMW3D),	OUTA 31
6	(DYDX(23), BETA1D), (DYDX(24), BETA2D), (DYDX(25), BETA3D),	OUTA 32
7	(DYDX(26), BTAS1D), (DYDX(27), BTAS2D), (DYDX(28), BTAS3D),	OUTA 33
8	(DYDX(29), DLSU1D), (DYDX(30), DLSU2D), (DYDX(31), DLSU3D),	OUTA 34
9	(DYDX(32), DLSSL1D), (DYDX(33), DLSSL2D), (DYDX(34), DLSSL3D),	OUTA 35
1	(DYDX(35), QG1DD), (DYDX(37), QG2DD), (DYDX(39), QG3DD),	OUTA 36
2	(DYDX(41), QQG1D), (DYDX(43), QQG2D), (DYDX(45), QQG3D),	OUTA 37
3	(DYDX(47), QBDD), (DYDX(55), QQBD), (DYDX(63), OMG1DD),	OUTA 38
4	(DYDX(64), OOMG1D)	OUTA 39
	EQUIVALENCE (P(476), FP), (P(479), MP)	OUTA 40
	EQUIVALENCE (P(501), FS1), (P(502), FG1H),	OUTA 41

SOURCE DECK LISTING

```

1 (P(505), FAX1), (P(508), PH1), (P(509), PA1), (P(510), PHS1), OUTA 42
2 (P(511), FFBU1), (P(512), FFBL1), (P(513), VW1) OUTA 43
    EQUIVALENCE (P(518), FS2), (P(519), FG2H), OUTA 44
1 (P(522), FAX2), (P(525), PH2), (P(526), PA2), (P(527), PHS2), OUTA 45
2 (P(528), FFBU2), (P(529), FFBL2), (P(530), VW2) OUTA 46
    EQUIVALENCE (P(535), FS3), (P(536), FG3H), OUTA 47
1 (P(539), FAX3), (P(542), PH3), (P(543), PA3), (P(544), PHS3), OUTA 48
2 (P(545), FFBU3), (P(546), FFBL3), (P(547), VW3) OUTA 49
    EQUIVALENCE (P(551), FH), (P(554), RUNOUT), OUTA 50
1 (P(555), SH), (P(556), VH), (P(557), PHHKR), (P(558), ALPHCR) OUTA 51
    EQUIVALENCE (P(561), ALPHA), (P(562), BETA), OUTA 52
1 (P(563), VAIR) OUTA 53
    EQUIVALENCE (NTEGER(1), IDENT), (NTEGER(11), NHOOK), OUTA 54
1 (NTEGER(15), NBE) OUTA 55
    EQUIVALENCE (NTEGER(49), NPAGE), (NTEGER(50), NLINE), OUTA 56
1 (NTEGER(53), NPRT) OUTA 57
    SAV1(NLINE,1) = T OUTA 58
    SAV1(NLINE,2) = VBD(1) / 12.0 OUTA 59
    SAV1(NLINE,3) = VB(1) / 12.0 OUTA 60
    SAV1(NLINE,4) = DD / 12.0 OUTA 61
    SAV1(NLINE,5) = D / 12.0 OUTA 62
    SAV1(NLINE,6) = VBD(2) / 12.0 OUTA 63
    SAV1(NLINE,7) = VB(2) / 12.0 OUTA 64
    SAV1(NLINE,8) = SD / 12.0 OUTA 65
    SAV1(NLINE,9) = S / 12.0 OUTA 66
    SAV1(NLINE,10) = VBD(3) / 12.0 OUTA 67
    SAV1(NLINE,11) = VB(3) / 12.0 OUTA 68
    SAV1(NLINE,12) = VD / 12.0 OUTA 69
    SAV1(NLINE,13) = V / 12.0 OUTA 70
    SAV2(NLINE,1) = T OUTA 71
    SAV2(NLINE,2) = OMEGBD(1) OUTA 72
    SAV2(NLINE,3) = OMEGB(1) OUTA 73
    SAV2(NLINE,4) = PHIRD OUTA 74
    SAV2(NLINE,5) = PHIR * 57.29578 OUTA 75
    SAV2(NLINE,6) = OMEGBD(2) OUTA 76
    SAV2(NLINE,7) = OMEGB(2) OUTA 77
    SAV2(NLINE,8) = THETRD OUTA 78
    SAV2(NLINE,9) = THETR * 57.29578 OUTA 79
    SAV2(NLINE,10) = OMEGBD(3) OUTA 80
    SAV2(NLINE,11) = OMEGB(3) OUTA 81
    SAV2(NLINE,12) = PSIRD OUTA 82
    SAV2(NLINE,13) = PSIR * 57.29578 OUTA 83
    SAV3(NLINE,1) = T OUTA 84
    SAV3(NLINE,2) = PH1 OUTA 85
    SAV3(NLINE,3) = PA1 OUTA 86
    SAV3(NLINE,4) = PHS1 OUTA 87
    SAV3(NLINE,5) = OMW1D OUTA 88
    SAV3(NLINE,6) = OMW1 OUTA 89
    SAV3(NLINE,7) = QG1DD(1) OUTA 90
    SAV3(NLINE,8) = QG1D(1) OUTA 91
    SAV3(NLINE,9) = QG1(1) OUTA 92
    SAV3(NLINE,10) = QG1DD(2) OUTA 93

```

SOURCE DECK LISTING

SAV3(NLINE,11) = QG1D(2)	OUTA 94
SAV3(NLINE,12) = QG1(2)	OUTA 95
SAV3(NLINE,13) = VW1	OUTA 96
SAV4(NLINE,1) = T	OUTA 97
SAV4(NLINE,2) = FS1	OUTA 98
SAV4(NLINE,3) = FG1H(1)	OUTA 99
SAV4(NLINE,4) = FG1H(2)	OUTA100
SAV4(NLINE,5) = FG1H(3)	OUTA101
SAV4(NLINE,6) = FAX1(1)	OUTA102
SAV4(NLINE,7) = FAX1(2)	OUTA103
SAV4(NLINE,8) = FAX1(3)	OUTA104
SAV4(NLINE,9) = S1DD	OUTA105
SAV4(NLINE,10) = S1D	OUTA106
SAV4(NLINE,11) = S1	OUTA107
SAV4(NLINE,12) = FFBU1	OUTA108
SAV4(NLINE,13) = FFBL1	OUTA109
SAV5(NLINE,1) = T	OUTA110
SAV5(NLINE,2) = PH2	OUTA111
SAV5(NLINE,3) = PA2	OUTA112
SAV5(NLINE,4) = PHS2	OUTA113
SAV5(NLINE,5) = OMW2D	OUTA114
SAV5(NLINE,6) = OMW2	OUTA115
SAV5(NLINE,7) = QG2DD(1)	OUTA116
SAV5(NLINE,8) = QG2D(1)	OUTA117
SAV5(NLINE,9) = QG2(1)	OUTA118
SAV5(NLINE,10) = QG2DD(2)	OUTA119
SAV5(NLINE,11) = QG2D(2)	OUTA120
SAV5(NLINE,12) = QG2(2)	OUTA121
SAV5(NLINE,13) = VW2	OUTA122
SAV6(NLINE,1) = T	OUTA123
SAV6(NLINE,2) = FS2	OUTA124
SAV6(NLINE,3) = FG2H(1)	OUTA125
SAV6(NLINE,4) = FG2H(2)	OUTA126
SAV6(NLINE,5) = FG2H(3)	OUTA127
SAV6(NLINE,6) = FAX2(1)	OUTA128
SAV6(NLINE,7) = FAX2(2)	OUTA129
SAV6(NLINE,8) = FAX2(3)	OUTA130
SAV6(NLINE,9) = S2DD	OUTA131
SAV6(NLINE,10) = S2D	OUTA132
SAV6(NLINE,11) = S2	OUTA133
SAV6(NLINE,12) = FFBU2	OUTA134
SAV6(NLINE,13) = FFBL2	OUTA135
SAV7(NLINE,1) = T	OUTA136
SAV7(NLINE,2) = PH3	OUTA137
SAV7(NLINE,3) = PA3	OUTA138
SAV7(NLINE,4) = PHS3	OUTA139
SAV7(NLINE,5) = OMW3D	OUTA140
SAV7(NLINE,6) = OMW3	OUTA141
SAV7(NLINE,7) = QG3DD(1)	OUTA142
SAV7(NLINE,8) = QG3D(1)	OUTA143
SAV7(NLINE,9) = QG3(1)	OUTA144
SAV7(NLINE,10) = QG3DD(2)	OUTA145

SOURCE DECK LISTING

SAV7(NLINE,11) = QG3D(2)	OUTA146
SAV7(NLINE,12) = QG3(2)	OUTA147
SAV7(NLINE,13) = VW3	OUTA148
SAV8(NLINE,1) = T	OUTA149
SAV8(NLINE,2) = FS3	OUTA150
SAV8(NLINE,3) = FG3H(1)	OUTA151
SAV8(NLINE,4) = FG3H(2)	OUTA152
SAV8(NLINE,5) = FG3H(3)	OUTA153
SAV8(NLINE,6) = FAX3(1)	OUTA154
SAV8(NLINE,7) = FAX3(2)	OUTA155
SAV8(NLINE,8) = FAX3(3)	OUTA156
SAV8(NLINE,9) = S3DD	OUTA157
SAV8(NLINE,10) = S3D	OUTA158
SAV8(NLINE,11) = S3	OUTA159
SAV8(NLINE,12) = FFBU3	OUTA160
SAV8(NLINE,13) = FFBL3	OUTA161
SAV9(NLINE,1) = T	OUTA162
SAV9(NLINE,2) = ALPHA	OUTA163
SAV9(NLINE,3) = BETA	OUTA164
SAV9(NLINE,4) = VAIR / 12.0	OUTA165
SAV9(NLINE,5) = FP(1)	OUTA166
SAV9(NLINE,6) = FP(2)	OUTA167
SAV9(NLINE,7) = FP(3)	OUTA168
SAV9(NLINE,8) = MP(1)	OUTA169
SAV9(NLINE,9) = MP(2)	OUTA170
SAV9(NLINE,10) = MP(3)	OUTA171
SAV9(NLINE,11) = OMG1DD	OUTA172
SAV9(NLINE,12) = OMG1D	OUTA173
SAV9(NLINE,13) = THTG1R * 57.29578	OUTA174
SAV10(NLINE,1) = T	OUTA175
SAV10(NLINE,2) = RUNOUT / 12.0	OUTA176
SAV10(NLINE,3) = SH / 12.0	OUTA177
SAV10(NLINE,4) = VH / 12.0	OUTA178
SAV10(NLINE,5) = PH1HCR * 57.29578	OUTA179
SAV10(NLINE,6) = ALPHCR * 57.29578	OUTA180
SAV10(NLINE,7) = FH(1)	OUTA181
SAV10(NLINE,8) = FH(2)	OUTA182
SAV10(NLINE,9) = FH(3)	OUTA183
SAV11(NLINE,1) = T	OUTA184
SAV11(NLINE,2) = QBDD(1)	OUTA185
SAV11(NLINE,3) = QBD(1)	OUTA186
SAV11(NLINE,4) = QB(1)	OUTA187
SAV11(NLINE,5) = QBDD(2)	OUTA188
SAV11(NLINE,6) = QBD(2)	OUTA189
SAV11(NLINE,7) = QB(2)	OUTA190
SAV11(NLINE,8) = QBDD(3)	OUTA191
SAV11(NLINE,9) = QBD(3)	OUTA192
SAV11(NLINE,10) = QB(3)	OUTA193
SAV11(NLINE,11) = QBDD(4)	OUTA194
SAV11(NLINE,12) = QBD(4)	OUTA195
SAV11(NLINE,13) = QB(4)	OUTA196
SAV12(NLINE,1) = T	OUTA197

SOURCE DECK LISTING

	SAV12(NLINE,2) = QBDD(5)	OUTA198
	SAV12(NLINE,3) = QBD(5)	OUTA199
	SAV12(NLINE,4) = QB(5)	OUTA200
	SAV12(NLINE,5) = QBDD(6)	OUTA201
	SAV12(NLINE,6) = QBD(6)	OUTA202
	SAV12(NLINE,7) = QB(6)	OUTA203
	SAV12(NLINE,8) = QBDD(7)	OUTA204
	SAV12(NLINE,9) = QBD(7)	OUTA205
	SAV12(NLINE,10) = QB(7)	OUTA206
	SAV12(NLINE,11) = QBDD(8)	OUTA207
	SAV12(NLINE,12) = QBD(8)	OUTA208
	SAV12(NLINE,13) = QB(8)	OUTA209
	IF (NPRT) 10, 550, 10	OUTA210
10	NPAGE = NPAGE + 1	OUTA211
	CALL PAGEHD	OUTA212
	WRITE (6,20)	OUTA213
20	FORMAT (8X, 1HT, 5X, 4HVBD1, 6X, 3HVB1, 7X, 2HDD, 8X, 1HD,	OUTA214
1	5X, 4HVBD2, 6X, 3HVB2, 7X, 2HSD, 8X, 1HS, 5X, 4HVBD3, 6X,	OUTA215
2	3HVB3, 7X, 2HVD, 8X, 1HV)	OUTA216
	WRITE (6,30)	OUTA217
30	FORMAT (6X, 3HSEC, 2X, 7HFT/SEC2, 3X, 6HFT/SEC, 3X, 6HFT/SEC,	OUTA218
1	7X, 2HFT, 2X, 7HFT/SEC2, 3X, 6HFT/SEC, 3X, 6HFT/SEC, 7X, 2HFT,	OUTA219
2	2X, 7HFT/SEC2, 3X, 6HFT/SEC, 3X, 6HFT/SEC, 7X, 2HFT)	OUTA220
	DO 40 I = 1, NLINE	OUTA221
40	WRITE (6,50) (SAV1(I,J), J = 1, 13)	OUTA222
50	FORMAT (F9.4, F9.3, F9.3, F9.3, F9.3, F9.3, F9.4, F9.4, F9.4, F9.4,	OUTA223
1	F9.3, F9.4, F9.4, F9.4)	OUTA224
	NPAGE = NPAGE + 1	OUTA225
	CALL PAGEHD	OUTA226
	WRITE (6,60)	OUTA227
60	FORMAT (8X, 1HT, 2X, 7HOMGBD1, 3X, 6HOMGB1, 5X, 4HPHID,	OUTA228
1	6X, 3HPH1, 2X, 7HOMGBD2, 3X, 6HOMGB2, 4X, 5HTHETD, 5X,	OUTA229
2	4HTHET, 2X, 7HOMGBD3, 3X, 6HOMGB3, 5X, 4HPS1D, 6X, 3HPS1)	OUTA230
	WRITE (6,70)	OUTA231
70	FORMAT (6X, 3HSEC, 1X, 8HRAD/SEC2, 2X, 7HRAD/SEC,	OUTA232
1	2X, 7HRAD/SEC, 6X, 3HDEG, 1X, 8HRAD/SEC2, 2X, 7HRAD/SEC,	OUTA233
2	2X, 7HRAD/SEC, 6X, 3HDEG, 1X, 8HRAD/SEC2, 2X, 7HRAD/SEC,	OUTA234
3	2X, 7HRAD/SEC, 6X, 3HDEG)	OUTA235
	DO 80 I = 1, NLINE	OUTA236
80	WRITE (6,90) (SAV2(I,J), J = 1, 13)	OUTA237
90	FORMAT (F9.4, F9.4, F9.4, F9.4, F9.3, F9.4, F9.4, F9.4, F9.3,	OUTA238
1	F9.4, F9.4, F9.4, F9.3)	OUTA239
	NPAGE = NPAGE + 1	OUTA240
	CALL PAGEHD	OUTA241
	WRITE (6,100)	OUTA242
100	FORMAT (8X, 1HT, 6X, 3HPH1, 6X, 3HPA1, 5X, 4HPS1, 4X, 5HOMW1D,	OUTA243
1	5X, 4HOMW1, 3X, 6HQG1DD1, 4X, 5HQG1D1, 5X, 4HQG11,	OUTA244
2	3X, 6HQG1DD2, 4X, 5HQG1D2, 5X, 4HQG12, 6X, 3HVV1)	OUTA245
	WRITE (6,110)	OUTA246
110	FORMAT (6X, 3HSEC, 3X, 6HLB/IN2, 3X, 6HLB/IN2, 3X, 6HLB/IN2,	OUTA247
1	1X, 8HRAD/SEC2, 2X, 7HRAD/SEC, 2X, 7HIN/SEC2, 3X, 6HIN/SEC,	OUTA248
2	7X, 2HIN, 2X, 7HIN/SEC2, 3X, 6HIN/SEC, 7X, 2HIN, 7X, 2HIN)	OUTA249

SOURCE DECK LISTING

	DO 120 I = 1, NLINE	OUTA250
120	WRITE (6,130) (SAV3(I,J), J = 1, 13)	OUTA251
130	FORMAT (F9.4, F9.1, F9.1, F9.1, F9.2, F9.3, F9.2, F9.3, F9.4, F9.2, F9.3, F9.4, F9.3)	OUTA252
	NPAGE = NPAGE + 1	OUTA253
	CALL PAGEHD	OUTA254
	WRITE (6,140)	OUTA255
140	FORMAT (8X, 1HT, 6X, 3HFS1, 4X, 5HFGW11, 4X, 5HFGW12,	OUTA256
1	4X, 5HFGW13, 4X, 5HFAX11, 4X, 5HFAX12, 4X, 5HFAX13,	OUTA257
2	5X, 4HS1DD, 6X, 3HS1D, 7X, 2HS1, 4X, 5HFFBU1, 4X, 5HFFBL1)	OUTA258
	WRITE (6,150)	OUTA259
150	FORMAT (6X, 3HSEC, 7X, 2HLB, 7X, 2HLB, 7X, 2HLB, 7X, 2HLB,	OUTA260
1	7X, 2HLB, 7X, 2HLB, 7X, 2HLB, 2X, 7HIN/SEC2, 3X, 6HIN/SEC,	OUTA261
2	7X, 2HIN, 7X, 2HLB, 7X, 2HLB)	OUTA262
	DO 160 I = 1, NLINE	OUTA263
160	WRITE (6,170) (SAV4(I,J), J = 1, 13)	OUTA264
170	FORMAT (F9.4, F9.0, F9.0, F9.0, F9.0, F9.0, F9.0, F9.0, F9.1,	OUTA265
1	F9.3, F9.4, F9.1, F9.1)	OUTA266
	NPAGE = NPAGE + 1	OUTA267
	CALL PAGEHD	OUTA268
	WRITE (6,180)	OUTA269
180	FORMAT (8X, 1HT, 6X, 3HPH2, 6X, 3HPA2, 5X, 4HPHS2, 4X, 5HOMW2D,	OUTA270
1	5X, 4HOMW2, 3X, 6HQG2DD1, 4X, 5HQG2D1, 5X, 4HQG21,	OUTA271
2	3X, 6HQG2DD2, 4X, 5HQG2D2, 5X, 4HQG22, 6X, 3HVW2)	OUTA272
	WRITE (6,190)	OUTA273
190	FORMAT (6X, 3HSEC, 3X, 6HLB/IN2, 3X, 6HLB/IN2, 3X, 6HLB/IN2,	OUTA274
1	1X, 8HRAD/SEC2, 2X, 7HRAD/SEC, 2X, 7HIN/SEC2, 3X, 6HIN/SEC,	OUTA275
2	7X, 2HIN, 2X, 7HIN/SEC2, 3X, 6HIN/SEC, 7X, 2HIN, 7X, 2HIN)	OUTA276
	DO 200 I = 1, NLINE	OUTA277
200	WRITE (6,210) (SAV5(I,J), J = 1, 13)	OUTA278
210	FORMAT (F9.4, F9.1, F9.1, F9.1, F9.2, F9.3, F9.2, F9.3, F9.4,	OUTA279
1	F9.2, F9.3, F9.4, F9.3)	OUTA280
	NPAGE = NPAGE + 1	OUTA281
	CALL PAGEHD	OUTA282
	WRITE (6,220)	OUTA283
220	FORMAT (8X, 1HT, 6X, 3HFS2, 4X, 5HFGW21, 4X, 5HFGW22,	OUTA284
1	4X, 5HFGW23, 4X, 5HFAX21, 4X, 5HFAX22, 4X, 5HFAX23,	OUTA285
2	5X, 4HS2DD, 6X, 3HS2D, 7X, 2HS2, 4X, 5HFFBU2, 4X, 5HFFBL2)	OUTA286
	WRITE (6,230)	OUTA287
230	FORMAT (6X, 3HSEC, 7X, 2HLB, 7X, 2HLB, 7X, 2HLB, 7X, 2HLB,	OUTA288
1	7X, 2HLB, 7X, 2HLB, 7X, 2HLB, 2X, 7HIN/SEC2, 3X, 6HIN/SEC,	OUTA289
2	7X, 2HIN, 7X, 2HLB, 7X, 2HLB)	OUTA290
	DO 240 I = 1, NLINE	OUTA291
240	WRITE (6,250) (SAV6(I,J), J = 1, 13)	OUTA292
250	FORMAT (F9.4, F9.0, F9.0, F9.0, F9.0, F9.0, F9.0, F9.0, F9.1,	OUTA293
1	F9.3, F9.4, F9.1, F9.1)	OUTA294
	NPAGE = NPAGE + 1	OUTA295
	CALL PAGEHD	OUTA296
	WRITE (6,260)	OUTA297
260	FORMAT (8X, 1HT, 6X, 3HPH3, 6X, 3HPA3, 5X, 4HPHS3, 4X, 5HOMW3D,	OUTA298
1	5X, 4HOMW3, 3X, 6HQG31DD, 4X, 5HQG31D, 5X, 4HQG31,	OUTA299
2	3X, 6HQG32DD, 4X, 5HQG32D, 5X, 4HQG32, 6X, 3HVW3)	OUTA300
		OUTA301

SOURCE DECK LISTING

	WRITE (6,270)	OUTA302
270	FORMAT (6X, 3HSEC, 3X, 6HLB/IN2, 3X, 6HLB/IN2, 3X, 6HLB/IN2,	OUTA303
1	1X, 8HRAD/SEC2, 2X, 7HRAD/SEC, 2X, 7HIN/SEC2, 3X, 6HIN/SEC,	OUTA304
2	7X, 2HIN, 2X, 7HIN/SEC2, 3X, 6HIN/SEC, 7X, 2HIN, 7X, 2HIN)	OUTA305
	DO 280 I = 1, NLINE	OUTA306
280	WRITE (6,290) (SAV7(I,J), J = 1, 13)	OUTA307
290	FORMAT (F9.4, F9.1, F9.1, F9.1, F9.2, F9.3, F9.2, F9.3, F9.4,	OUTA308
1	F9.2, F9.3, F9.4, F9.3)	OUTA309
	NPAGE = NPAGE + 1	OUTA310
	CALL PAGEHD	OUTA311
	WRITE (6,300)	OUTA312
300	FORMAT (8X, 1HT, 6X, 3HFS3, 4X, 5HFGW31, 4X, 5HFGW32,	OUTA313
1	4X, 5HFGW33, 4X, 5HFAX31, 4X, 5HFAX32, 4X, 5HFAX33,	OUTA314
2	5X, 4HS3DD, 6X, 3HS3D, 7X, 2HS3, 4X, 5HFFBU3, 4X, 5HFFBL3)	OUTA315
	WRITE (6,310)	OUTA316
310	FORMAT (6X, 3HSEC, 7X, 2HLB, 7X, 2HLB, 7X, 2HLB, 7X, 2HLB,	OUTA317
1	7X, 2HLB, 7X, 2HLB, 7X, 2HLB, 2X, 7HIN/SEC2, 3X, 6HIN/SEC,	OUTA318
2	7X, 2HIN, 7X, 2HLB, 7X, 2HLB)	OUTA319
	DO 320 I = 1, NLINE	OUTA320
320	WRITE (6,330) (SAV8(I,J), J = 1, 13)	OUTA321
330	FORMAT (F9.4, F9.0, F9.0, F9.0, F9.0, F9.0, F9.0, F9.0, F9.1,	OUTA322
1	F9.3, F9.4, F9.1, F9.1)	OUTA323
	NPAGE = NPAGE + 1	OUTA324
	CALL PAGEHD	OUTA325
	WRITE (6,340)	OUTA326
340	FORMAT (8X, 1HT, 4X, 5HALPHA, 5X, 4HBETA, 5X, 4HVAIR,	OUTA327
1	6X, 3HFP1, 6X, 3HFP2, 6X, 3HFP3, 6X, 3HMP1, 6X, 3HMP2,	OUTA328
2	6X, 3HMP3, 3X, 6HOMG1DD, 4X, 5HOMG1D, 4X, 5HTHTG1)	OUTA329
	WRITE (6,350)	OUTA330
350	FORMAT (6X, 3HSEC, 6X, 3HDEG, 6X, 3HDEG, 3X, 6HFT/SEC,	OUTA331
1	7X, 2HLB, 7X, 2HLB, 7X, 2HLB, 4X, 5HIN LB, 4X, 5HIN LB,	OUTA332
2	4X, 5HIN LB, 1X, 8HRAD/SEC2, 2X, 7HRAD/SEC, 6X, 3HDEG)	OUTA333
	DO 360 I = 1, NLINE	OUTA334
360	WRITE (6,370) (SAV9(I,J), J = 1, 13)	OUTA335
370	FORMAT (F9.4, F9.3, F9.3, F9.3, F9.0, F9.0, F9.0, F9.0, F9.0,	OUTA336
1	F9.0, F9.3, F9.3, F9.3)	OUTA337
	IF (NHOOK) 380, 430, 380	OUTA338
380	NPAGE = NPAGE + 1	OUTA339
	CALL PAGEHD	OUTA340
	WRITE (6,390)	OUTA341
390	FORMAT (8X, 1HT, 3X, 6HRUNOUT, 7X, 2HSH, 7X, 2HVVH, 4X, 5HPIHK,	OUTA342
1	4X, 5HALPHC, 6X, 3HFH1, 6X, 3HFH2, 6X, 3HFH3)	OUTA343
	WRITE (6,400)	OUTA344
400	FORMAT (6X, 3HSEC, 7X, 2HFT, 7X, 2HFT, 7X, 2HFT, 6X, 3HDEG,	OUTA345
1	6X, 3HDEG, 7X, 2HLB, 7X, 2HLB, 7X, 2HLB)	OUTA346
	DO 410 I = 1, NLINE	OUTA347
410	WRITE (6,420) (SAV10(I,J), J = 1, 9)	OUTA348
420	FORMAT (F9.4, F9.3, F9.3, F9.3, F9.3, F9.3, F9.0,	OUTA349
1	F9.0, F9.0)	OUTA350
430	IF (NBE) 440, 540, 440	OUTA351
440	NPAGE = NPAGE + 1	OUTA352
	CALL PAGEHD	CUTA353

SOURCE DECK LISTING

	WRITE (6,450)	OUTA354
450	FORMAT (8X, 1HT, 4X, 5HQBDD1, 5X, 4HQBDD1, 6X, 3HQB1,	OUTA355
1	4X, 5HQBDD2, 5X, 4HQBDD2, 6X, 3HQB2, 4X, 5HQBDD3, 5X, 4HQBDD3,	OUTA356
2	6X, 3HQB3, 4X, 5HQBDD4, 5X, 4HQBDD4, 6X, 3HQB4)	OUTA357
	WRITE (6,460)	OUTA358
460	FORMAT (6X, 3HSEC, 2X, 7HIN/SEC2, 3X, 6HIN/SEC, 7X, 2HIN,	OUTA359
1	2X, 7HIN/SEC2, 3X, 6HIN/SEC, 7X, 2HIN, 2X, 7HIN/SEC2,	OUTA360
2	3X, 6HIN/SEC, 7X, 2HIN, 2X, 7HIN/SEC2, 3X, 6HIN/SEC, 7X, 2HIN)	OUTA361
	DO 470 I = 1, NLINE	OUTA362
470	WRITE (6,480) (SAV11(I,J), J = 1, 13)	OUTA363
480	FORMAT (F9.4, F9.2, F9.3, F9.4, F9.2, F9.3, F9.4, F9.2, F9.3,	OUTA364
1	F9.4, F9.2, F9.3, F9.4)	OUTA365
	IF(NBE - 5) 540, 490, 490	OUTA366
490	NPAGE = NPAGE + 1	OUTA367
	CALL PAGEHD	OUTA368
	WRITE (6,500)	OUTA369
500	FORMAT (8X, 1HT, 4X, 5HQBDD5, 5X, 4HQBDD5, 6X, 3HQB5,	OUTA370
1	4X, 5HQBDD6, 5X, 4HQBDD6, 6X, 3HQB6, 4X, 5HQBDD7, 5X, 4HQBDD7,	OUTA371
2	6X, 3HQB7, 4X, 5HQBDD8, 5X, 4HQBDD8, 6X, 3HQB8)	OUTA372
	WRITE (6,510)	OUTA373
510	FORMAT (6X, 3HSEC, 2X, 7HIN/SEC2, 3X, 6HIN/SEC, 7X, 2HIN,	OUTA374
1	2X, 7HIN/SEC2, 3X, 6HIN/SEC, 7X, 2HIN, 2X, 7HIN/SEC2,	OUTA375
2	3X, 6HIN/SEC, 7X, 2HIN, 2X, 7HIN/SEC2, 3X, 6HIN/SEC, 7X, 2HIN)	OUTA376
	DO 520 I = 1, NLINE	OUTA377
520	WRITE (6,530) (SAV12(I,J), J = 1, 13)	OUTA378
530	FORMAT (F9.4, F9.2, F9.3, F9.4, F9.2, F9.3, F9.4, F9.2, F9.3,	OUTA379
1	F9.4, F9.2, F9.3, F9.4)	OUTA380
540	NPRT = 0	OUTA381
550	RETURN	OUTA382
	END	OUTA383

APPENDIX B

DATA DECK LISTING

70	3	0	0	0	0	79	0	110	0	1	4	64	25	FIRST SECOND THIRD FOURTH PCOUNT
8	2	2	2	1	2	2	0	0	0	1				
SAMPLE RUN - LANDING IMPACT SOLUTION														
INCLUDES EIGHT ELASTIC BODY MODES FOR AIRFRAME														
1	191	1												
0.001	0.800	373.2	0.0	211.0	138888.0									P1 P6
0.00008				175.4	0.0									P7 P12
161.6	183.44	0.0	111.69	7.5	-2.0									P13 P18
0.0	0.15	50000.0	200.0	160000.0	191.3									P19 P24
16.278	19.596	0.586	0.95	16.73	3.824									P25 P30
0.041187	0.11341	0.80	11.15	-0.131613	-0.75464									P31 P36
131.079	14.184	0.0	0.05	0.05	3.65									P37 P42
0.4798	0.01	0.23259	0.02											P43 P48
		415.0	-37.90	181.50	413.44									P49 P54
-73.23	123.20	10.0	0.0	0.0										P55 P60
	200.0	400000.0	233.872	24.864	21.606									P61 P66
0.442	0.95	10.478	3.258	0.0049	0.0049									P67 P72
0.80	14.75	0.0	0.95886	-1.80814	-193.545									P73 P78
-77.047	-41.138	30.804	0.0	0.05	0.05									P79 P84
4.75	0.3651	0.01	0.36038	0.02										P85 P90
415.0	37.90	181.50	413.44	73.23	123.20									P91 P96
10.0	0.0	0.0			200.0									P97 P102
400000.0	233.872	24.864	21.606	0.442	0.95									P103P108
10.478	3.258	0.0049	0.0049	0.80	14.75									P109P114
0.0	-0.95886	-1.80814	193.545	-77.047	41.138									P115P120
30.804	0.0	0.05	0.05	4.75	0.3651									P121P126
0.01	0.36038	0.02		580.7	0.0									P127P132
180.6	76.5	38.5	30.0	38.0	0.0									P133P138
0.0	1290.0	0.0	0.0	0.05	2760.0									P139P144
	331.5	0.0	184.25	-3.5	0.0									P145P150
97.6327	904452.0	0.0	-115644.0	0.0	1074108.0									P151P156
0.0	-115644.0	0.0	1799952.0	373.2	0.0									P157P162
211.0	0.0	0.10831-0686112.0	113.24	816.0										P163P168
		-0.0855												P169P174
					-0.885									P175P180
0.0	0.0	0.0	50.0											P181P186
108.21	100.21	24.0	13.20	2.0										P187P191
401	428	1												PCOUNT
1.0	1.0	1.0	1.0	1.0	1.0									P401P406
1.0	1.0			0.05	0.05									P407P412
0.05	0.05	0.05	0.05	0.05	0.05									P413P418
		597.0	667.0	1011.0	1274.0									P419P424
2826.0	3071.0	3869.0	4394.0											P425P428
431	454	1												PCOUNT
-0.00133280.0		0.0198243	-0.00004060.0		0.0018895									P431P436
-0.00920630.0		0.0572915	0.0004930	0.0	0.0040284									P437P442
0.0010933	0.0	-0.04811220.0280405	0.0		-0.0112906									P443P448
-0.023243	0.0	0.0080651	-0.00906080.0		0.0027408									P449P454
1		15												ST1 1-7
0.0	0.2175	0.4598	0.7414	1.0633	1.8298									ST1 2-7
2.2758	3.2982	4.5054	5.9254	6.7346	7.6337									ST1 3-7
8.6663	9.9677	11.9935												ST1 4-7

DATA DECK LISTING

0.0	-0.5846	-1.1221	-1.6563	-2.186	-3.2254
-3.7325	-4.714	-5.6435	-6.5106	-6.9178	-7.3059
-7.6739	-8.0207	-8.2576			
2		15			
0.0	0.2179	0.4598	0.7414	1.0633	1.8298
2.2758	3.2982	4.5054	5.9254	6.7346	7.6337
8.663	9.9677	11.9935			
0.0	-0.5131	-1.0567	-1.6692	-2.3519	-3.935
-4.8394	-6.8879	-9.2877	-12.1128	-13.7345	-15.5546
-17.6811	-20.4447	-25.0809			
3		15			
0.0	0.2179	0.4598	0.7414	1.0633	1.8298
2.2758	3.2982	4.5054	5.9254	6.7346	7.6337
8.6663	9.9677	11.9935			
-2.9417	-2.4231	-2.0487	-1.7644	-1.5399	-1.2044
-1.0741	-0.8609	-0.6886	-0.5393	-0.4683	-0.3960
-0.3170	-0.2145	-0.0			
4		15			
0.0	0.2179	0.4598	0.7414	1.0633	1.8298
2.2758	3.2982	4.5054	5.9254	6.7346	7.6337
8.6663	9.9677	11.9935			
-2.4157	-2.2931	-2.2079	-2.1461	-2.1000	-2.0384
-2.0182	-1.9932	-1.9855	-1.9968	-2.0123	-2.0384
-2.0831	-2.1717	-2.4413			
5		10			
-3.47	-3.2	-2.8	-2.4	-2.0	-1.6
-1.20	-0.80	-0.40	0.0		
-85000.0	-75200.0	-65400.0	-54600.0	-43800.0	-33000.0
-23000.0	-14000.0	-6400.0	0.0		
6		11			
-1.0	0.0	0.1	0.65	1.85	2.90
3.50	6.00	8.50	10.70	11.00	
0.180956	0.180956	0.528102	0.395919	0.390362	0.447696
0.447696	0.459635	0.502655	0.567450	0.567450	
7		18			
0.0	1.0	2.0	3.0	4.0	5.0
6.0	7.0	8.0	8.16	8.5	9.0
9.5	10.0	10.5	11.0	11.2	11.4
248.20	272.90	303.06	340.68	388.91	452.95
542.00	674.02	888.98	936.41	1055.53	1294.99
1663.57	2283.16	3429.64	5614.63	6884.08	8374.09
8		3			
0.0	0.10	1.0			
0.01	0.60	0.20			
9		6			
0.0	0.5	1.0	2.0	6.0	11.0
4.40	2.614	2.063	1.666	1.70	1.75
10		15			
0.0	0.2179	0.4598	0.7414	1.0633	1.8298
2.2758	3.2982	4.5054	5.9254	6.7346	7.6337
8.6663	9.9677	11.9935			
-1.3329	-1.4434	-1.4948	-1.5046	-1.4847	-1.3842

ST1	5-7
ST1	6-7
ST1	7-7
ST2	1-7
ST2	2-7
ST2	3-7
ST2	4-7
ST2	5-7
ST2	6-7
ST2	7-7
ST3	1-7
ST3	2-7
ST3	3-7
ST3	4-7
ST3	5-7
ST3	6-7
ST3	7-7
ST4	1-7
ST4	2-7
ST4	3-7
ST4	4-7
ST4	5-7
ST4	6-7
ST4	7-7
ST5	1-5
ST5	2-5
ST5	3-5
ST5	4-5
ST5	5-5
ST6	1-5
ST6	2-5
ST6	3-5
ST6	4-5
ST6	5-5
ST7	1-7
ST7	2-7
ST7	3-7
ST7	4-7
ST7	5-7
ST7	6-7
ST7	7-7
ST8	1-3
ST8	2-3
ST8	3-3
ST9	1-3
ST9	2-3
ST9	3-3
ST10	1-7
ST10	2-7
ST10	3-7
ST10	4-7
ST10	5-7

DATA DECK LISTING

-1.3135	-1.1457	-0.9566	-0.7554	-0.6512	-0.5295	ST10	6-7
-0.4307	-0.3018	-0.1316				ST10	7-7
12		15				ST12	1-7
0.0	0.2179	0.4598	0.7414	1.0633	1.8298	ST12	2-7
2.2758	3.2982	4.5054	5.9254	6.7346	7.6337	ST12	3-7
8.6663	9.9677	11.9935				ST12	4-7
-0.01611	-0.09944	-0.1668	-0.2228	-0.2699	-0.3427	ST12	5-7
-0.3702	-0.4090	-0.4286	-0.4297	-0.4227	-0.3988	ST12	6-7
-0.3883	-0.3502	-0.2579				ST12	7-7
13		15				ST13	1-7
0.0	0.2179	0.4598	0.7414	1.0633	1.8298	ST13	2-7
2.2758	3.2982	4.5054	5.9254	6.7346	7.6337	ST13	3-7
8.6663	9.9677	11.9935				ST13	4-7
-2.3586	-2.5916	-2.7282	-2.7999	-2.8261	-2.7872	ST13	5-7
-2.7367	-2.5939	-2.4124	-2.1999	-2.0803	-1.9471	ST13	6-7
-1.7892	-1.5714	-1.1315				ST13	7-7
15		15				ST15	1-7
0.0	0.2179	0.4598	0.7414	1.0633	1.8298	ST15	2-7
2.2758	3.2982	4.5054	5.9254	6.7346	7.6337	ST15	3-7
8.6663	9.9677	11.9935				ST15	4-7
-0.02851	-0.1785	-0.3044	-0.4146	-0.5138	-0.6901	ST15	5-7
-0.7713	-0.9260	-1.0809	-1.2514	-1.3503	-1.4665	ST15	6-7
-1.6125	-1.8233	-2.2175				ST15	7-7
16		2				ST16	1-3
0.0	11.0					ST16	2-3
1.0	1.0					ST16	3-3
17		2				ST17	1-3
0.0	11.0					ST17	2-3
1.0	1.0					ST17	3-3
18		3				ST18	1-3
0.0	5.5	11.0				ST18	2-3
61518.0	101031.0	106190.0				ST18	3-3
19		3				ST19	1-3
0.0	5.5	11.0				ST19	2-3
572284.0	570212.0	491676.0				ST19	3-3
20		3				ST20	1-3
0.0	5.5	11.0				ST20	2-3
1.746899	1.462703	0.818309				ST20	3-3
22		3				ST22	1-3
0.0	5.5	11.0				ST22	2-3
0.442909	1.054803	1.650683				ST22	3-3
23		3				ST23	1-3
0.0	5.5	11.0				ST23	2-3
-0.186037	0.520520	1.093284				ST23	3-3
25		3				ST25	1-3
0.0	5.5	11.0				ST25	2-3
-1.301341	-1.42151	-0.92123				ST25	3-3
27		2				ST27	1-3
0.0	11.0					ST27	2-3
-0.0011421	-0.0011421					ST27	3-3
29		2				ST29	1-3
0.0	11.0					ST29	2-3

DATA DECK LISTING

0.010067 0.010067

30 2

0.0 11.0

0.0004197 0.0004197

32 2

0.0 11.0

0.0031149 0.0031149

33 2

0.0 11.0

-0.0080396-0.0080396

35 2

0.0 11.0

0.0181248 0.0181248

36 2

0.0 11.0

0.0000873 0.0000873

38 2

0.0 11.0

-0.0011848-0.0011848

39 2

0.0 11.0

-0.0575785-0.0575785

41 2

0.0 11.0

-0.1161805-0.1161805

42 2

0.0 11.0

0.0357831 0.0357831

44 2

0.0 11.0

0.0354838 0.0354838

45 2

0.0 11.0

-0.0351258-0.0351258

47 2

0.0 11.0

-0.0129542-0.0129542

48 2

0.0 11.0

-0.0033843-0.0033843

50 2

0.0 11.0

0.0125053 0.0125053

51 13

0.0 0.9287 1.8324 2.7158 3.5810 4.4292

5.2619 6.0798 6.8840 7.6750 8.4534 9.2196

9.9740

0.0 -0.30 -0.56 -0.80 -1.0 -1.18

-1.34 -1.48 -1.59 -1.69 -1.77 -1.83

-1.87

52 13

0.0 0.9287 1.8324 2.7158 3.5810 4.4292

ST29 3-3

ST30 1-3

ST30 2-3

ST30 3-3

ST32 1-3

ST32 2-3

ST32 3-3

ST33 1-3

ST33 2-3

ST33 3-3

ST35 1-3

ST35 2-3

ST35 3-3

ST36 1-3

ST36 2-3

ST36 3-3

ST38 1-3

ST38 2-3

ST38 3-3

ST39 1-3

ST39 2-3

ST39 3-3

ST41 1-3

ST41 2-3

ST41 3-3

ST42 1-3

ST42 2-3

ST42 3-3

ST44 1-3

ST44 2-3

ST44 3-3

ST45 1-3

ST45 2-3

ST45 3-3

ST47 1-3

ST47 2-3

ST47 3-3

ST48 1-3

ST48 2-3

ST48 3-3

ST50 1-3

ST50 2-3

ST50 3-3

ST51 1-7

ST51 2-7

ST51 3-7

ST51 4-7

ST51 5-7

ST51 6-7

ST51 7-7

ST52 1-7

ST52 2-7

DATA DECK LISTING

5.2619	6.0798	6.8840	7.6750	8.4534	9.2196	ST52	3-7
9.9740						ST52	4-7
0.0	1.5614	2.9966	4.3167	5.5307	6.6461	ST52	5-7
7.5695	8.6062	9.4609	10.2375	10.9396	11.5700	ST52	6-7
12.1313						ST52	7-7
53		13				ST53	1-7
0.0	0.9287	1.8324	2.7158	3.5810	4.4292	ST53	2-7
5.2619	6.0798	6.8840	7.6750	8.4534	9.2196	ST53	3-7
9.9740						ST53	4-7
0.0	-2.0851	-4.1622	-6.2320	-8.2950	-10.3516	ST53	5-7
-12.4022	-14.4472	-16.4868	-18.5215	-20.5512	-22.5765	ST53	6-7
-24.5973						ST53	7-7
54		13				ST54	1-7
0.0	0.9287	1.8324	2.7158	3.5810	4.4292	ST54	2-7
5.2619	6.0798	6.8840	7.6750	8.4534	9.2196	ST54	3-7
9.9740						ST54	4-7
-0.33408	-0.30506	-0.27745	-0.25105	-0.22568	-0.20121	ST54	5-7
-0.17752	-0.15450	-0.13205	-0.11011	-0.08858	-0.06740	ST54	6-7
-0.01650						ST54	7-7
55		13				ST55	1-7
0.0	0.9287	1.8324	2.7158	3.5810	4.4292	ST55	2-7
5.2619	6.0798	6.8840	7.6750	8.4534	9.2196	ST55	3-7
9.9740						ST55	4-7
1.7363	1.63464	1.5405	1.4481	1.3586	1.2716	ST55	5-7
1.1867	1.1036	1.0220	0.94159	0.8621	0.78327	ST55	6-7
0.70484						ST55	7-7
56		13				ST56	1-7
0.0	0.9287	1.8324	2.7158	3.5810	4.4292	ST56	2-7
5.2619	6.0798	6.8840	7.6750	8.4534	9.2196	ST56	3-7
9.9740						ST56	4-7
-2.2272	-2.2758	-2.3212	-2.3641	-2.4049	-2.4439	ST56	5-7
-2.4817	-2.5184	-2.5544	-2.5899	-2.6254	-2.6610	ST56	6-7
-2.6971						ST56	7-7
57		2				ST57	1-3
-10.0	0.0					ST57	2-3
-160000.0	0.0					ST57	3-3
58		12				ST58	1-5
-1.0	0.0	0.1	0.4	1.7	2.5	ST58	2-5
3.45	5.0	7.0	8.0	9.0	10.0	ST58	3-5
0.253388	0.253368	0.352565	0.311724	0.256970	0.246301	ST58	4-5
0.246391	0.266526	0.335927	0.373928	0.407150	0.407150	ST58	5-5
59		15				ST59	1-7
0.0	1.0	2.0	3.0	4.0	5.0	ST59	2-7
6.0	6.65	7.0	7.5	8.0	8.5	ST59	3-7
9.0	9.2	9.4				ST59	4-7
608.07	682.46	777.34	902.39	1074.33	1324.56	ST59	5-7
1718.46	2117.71	2411.59	2781.74	3825.65	5105.5	ST59	6-7
7015.0	7985.0	9074.01				ST59	7-7
60		3				ST60	1-3
0.0	0.10	1.0				ST60	2-3
0.01	0.60	0.20				ST60	3-3
61		5				ST61	1-3

DATA DECK LISTING

0.0	2.322	4.597	6.764	9.0
5.44858	5.153147	4.95535	4.85131	4.830241
68		2		
0.0	9.0			
1.0	1.0			
69		2		
0.0	9.0			
1.0	1.0			
70		2		
0.0	9.0			
30348.0	33952.0			
71		2		
0.0	9.0			
64397.0	61276.0			
72		2		
0.0	9.0			
1.065863	1.115001			
73		2		
0.0	9.0			
0.4231894	0.2409872			
74		2		
0.0	9.0			
0.2288523	0.3263977			
75		2		
0.0	9.0			
0.3914328	0.3157845			
76		2		
0.0	9.0			
-0.4216336	-0.375903			
77		2		
0.0	9.0			
-0.2131473	-0.3792929			
78		2		
0.0	9.0			
-0.0030984	-0.0030984			
80		2		
0.0	9.0			
0.012376	0.012376			
81		2		
0.0	9.0			
0.0000216	0.0000216			
83		2		
0.0	9.0			
0.0018361	0.0018361			
84		2		
0.0	9.0			
-0.0160603	-0.0160603			
86		2		
0.0	9.0			
0.0256566	0.0256566			
87		2		
0.0	9.0			

ST61	2-3
ST61	3-3
ST68	1-3
ST68	2-3
ST68	3-3
ST69	1-3
ST69	2-3
ST69	3-3
ST70	1-3
ST70	2-3
ST70	3-3
ST71	1-3
ST71	2-3
ST71	3-3
ST72	1-3
ST72	2-3
ST72	3-3
ST73	1-3
ST73	2-3
ST73	3-3
ST74	1-3
ST74	2-3
ST74	3-3
ST75	1-3
ST75	2-3
ST75	3-3
ST76	1-3
ST76	2-3
ST76	3-3
ST77	1-3
ST77	2-3
ST77	3-3
ST78	1-3
ST78	2-3
ST78	3-3
ST80	1-3
ST80	2-3
ST80	3-3
ST81	1-3
ST81	2-3
ST81	3-3
ST83	1-3
ST83	2-3
ST83	3-3
ST84	1-3
ST84	2-3
ST84	3-3
ST86	1-3
ST86	2-3
ST86	3-3
ST87	1-3
ST87	2-3

DATA DECK LISTING

```

-0.0002919-0.0002919
  89          2
0.0          9.0
0.0008319 0.0008319
  90          2
0.0          9.0
0.0021724 0.0021724
  92          2
0.0          9.0
0.0183341 0.0183341
  93          2
0.0          9.0
0.0329246 0.0329246
  95          2
0.0          9.0
0.0171435 0.0171435
  96          2
0.0          9.0
-0.0230209-0.0230209
  98          2
0.0          9.0
0.0156735 0.0156735
  99          2
0.0          9.0
-0.0103653-0.0103653
 101          2
0.0          9.0
0.0002822 0.0002822
 102          6
0.0          0.5          1.0          2.0          6.0          11.0
-1.644      -1.205      -1.014      -0.861      -0.802      -1.050
 103          6
0.0          0.5          1.0          2.0          6.0          11.0
1.17        0.985        0.899        0.822        0.747        0.588
 104          2
0.0          9.0
-0.087      -0.501
 105          2
0.0          9.0
-0.257      0.45
 110          20
0.0          0.025        0.05          0.075        0.10          0.15
0.20         0.25         0.30          0.35          0.40          0.425
0.45         0.50         0.55          0.60          0.70          0.80
0.90         0.95
0.0          0.1515       0.1938       0.2584       0.3230       0.4634
0.55         0.6023       0.6646       0.7123       0.7446       0.7546
0.76         0.7431       0.6993       0.6493       0.5735       0.5208
0.4523       0.3665
0.4523       0.3685

```

```

ST87  3-3
ST89  1-3
ST89  2-3
ST89  3-3
ST90  1-3
ST90  2-3
ST90  3-3
ST92  1-3
ST92  2-3
ST92  3-3
ST93  1-3
ST93  2-3
ST93  3-3
ST95  1-3
ST95  2-3
ST95  3-3
ST96  1-3
ST96  2-3
ST96  3-3
ST98  1-3
ST98  2-3
ST98  3-3
ST99  1-3
ST99  2-3
ST99  3-3
ST101 1-3
ST101 2-3
ST101 3-3
ST102 1-3
ST102 2-3
ST102 3-3
ST103 1-3
ST103 2-3
ST103 3-3
ST104 1-3
ST104 2-3
ST104 3-3
ST105 1-3
ST105 2-3
ST105 3-3
ST110 1-9
ST110 2-9
ST110 3-9
ST110 4-9
ST110 5-9
ST110 6-9
ST110 7-9
ST110 8-9
ST110 9-9
ST110 9-9

```

INPUT DATA

INTEGRATION TIME STEP = .0010 SEC.

MAXIMUM RUN TIME = .8000 SEC.

KN(1) =	373.2000	IN			
KN(2) =	.0000	IN			
KN(3) =	211.0000	IN			
XT1(1) =	175.4000	IN			
XT1(2) =	.0000	IN			
XT1(3) =	161.6000	IN			
XA1(1) =	183.4400	IN			
XA1(2) =	.0000	IN			
XA1(3) =	111.6900	IN			
WC13 =	7.5000	IN			
VM10 =	3.6500	IN			
ETA1 =	-2.000	DEG			
ZETA1 =	.000	DEG			
MUB1 =	.15000				
KBF1 =	50000.00	LB/IN			
CBG1 =	200.000	LB SEC/IN			
KBG1 =	160000.000	LB/IN			
VOLH01 =	191.30000	IN3			
AH1 =	16.27800	IN2			
AA1 =	19.59600	IN2			
AO1 =	.58600	IN2			
CO1 =	.95000	IN2			
VOLS01 =	16.73000	IN3			
AHS1 =	3.82400	IN2			
ANSE1 =	.0411870	IN2			
ANSC1 =	.113410C	IN2			
CDS1 =	.80000	IN2			
RW1 =	11.150	IN			
AP1AVG =	.4798	IN2			
MUR1 =	.0100				
MW1 =	.7326				
CCOEF1 =	.0200	LB SEC2/IN			
MV1S1 =	-.131613	LB SEC2/IN			
MV3S1 =	-.754640	LB SEC2/IN			
M02S1 =	131.07900	LB IN SEC2			
MOW1 =	14.1840	LB IN SEC2			
ZQG111 =	.0500				
ZQG122 =	.0500				
XT2(1) =	415.0000	IN			
XT2(2) =	-37.9000	IN			
XT2(3) =	181.5000	IN			
XA2(1) =	413.4400	IN			
XA2(2) =	-73.2300	IN			
XA2(3) =	123.2000	IN			
WC23 =	10.0000	IN			
VM20 =	4.7500	IN			
ETA2 =	.000	DEG			
ZETA2 =	.000	DEG			
MUB2 =	.00000				
KBF2 =	.00	LB/IN			
CBG2 =	200.000	LB SEC/IN			
KBG2 =	400000.000	LB/IN			
VOLH02 =	233.87200	IN3			
AH2 =	24.86400	IN2			
AA2 =	21.60600	IN2			
AO2 =	.44200	IN2			
CD2 =	.95000	IN2			
VOLS02 =	10.47800	IN3			
AHS2 =	3.25800	IN2			
ANSE2 =	.0049000	IN2			
ANSC2 =	.0049000	IN2			
CDS2 =	.80000	IN2			
RW2 =	14.750	IN			
AP2AVG =	.3651	IN2			
MUR2 =	.0100				
MW2 =	.3604				
CCOEF2 =	.0200	LB SEC2/IN			
MV1S2 =	.000000	LB SEC2/IN			
MV2S2 =	-.958860	LB SEC2/IN			
MV3S2 =	-1.808140	LB SEC2/IN			
M01S2 =	-193.54500	LB SEC2			
M02S2 =	-77.04700	LB SEC2			
M03S2 =	-41.13800	LB SEC2			
MOW2 =	30.8040	LB IN SEC2			
ZQG211 =	.0500				
ZQG222 =	.0500				
XT3(1) =	415.0000	IN			
XT3(2) =	37.9000	IN			
XT3(3) =	181.5000	IN			
XA3(1) =	413.4400	IN			
XA3(2) =	73.2300	IN			
XA3(3) =	123.2000	IN			
WC33 =	10.0000	IN			
VM30 =	4.7500	IN			
ETA3 =	.000	DEG			
ZETA3 =	.000	DEG			
MUB3 =	.00000				
KBF3 =	.00	LB/IN			
CBG3 =	200.000	LB SEC/IN			
KBG3 =	400000.000	LB/IN			
VOLH03 =	233.87200	IN3			
AH3 =	24.86400	IN2			
AA3 =	21.60600	IN2			
AO3 =	.44200	IN2			
CD3 =	.95000	IN2			
VOLS03 =	10.47800	IN3			
AHS3 =	3.25800	IN2			
ANSE3 =	.0049000	IN2			
ANSC3 =	.0049000	IN2			
CDS3 =	.80000	IN2			
RW3 =	14.750	IN			
AP3AVG =	.3651	IN2			
MUR3 =	.0100				
MW3 =	.3604				
CCOEF3 =	.0200	LB SEC2/IN			
MV1S3 =	.000000	LB SEC2/IN			
MV2S3 =	-.958860	LB SEC2/IN			
MV3S3 =	-1.808140	LB SEC2/IN			
M01S3 =	193.54500	LB SEC2			
M02S3 =	-77.04700	LB SEC2			
M03S3 =	41.13800	LB SEC2			
MOW3 =	30.8040	LB IN SEC2			
ZQG311 =	.0500				
ZQG322 =	.0500				

RUN NO.	70	PAGE NO.	2	DENOIL =	.00008000	LB SEC2/IN4	
KBULK =	138888.00	LB/IN2					
XH(1) =	580.7000	IN					
XH(2) =	.0000	IN					
XH(3) =	180.6000	IN					
LHV =	76.5000	IN					
PHIHO =	30.000	DEG					
BC =	1290.00	IN					
VHPTC =	.000	IN					
XTH(1) =	331.500	IN					
XTH(2) =	.000	IN					
XTH(3) =	184.250	IN					
SIGT =	-3.5000	DEG					
WEIGHT =	37695.01	LB					
M0101 =	904452.00	LB IN SEC2					
M0201 =	.00	LB IN SEC2					
M0301 =	-115644.00	LB IN SEC2					
XP(1) =	373.200	IN					
VWIND =	143.15	IN/SEC					
S =	86112.0000	IN2					
DELTA =	.00	DEG					
CXAL =	.0000	1/DEG					
CXDL =	.0000	1/DEG					
CLBT =	.0000	1/DEG					
CXO =	.0000						
CIQA1 =	.00000000	1/DEG					
CIQA2 =	.00000000	1/DEG					
CIQA3 =	.00000000	1/DEG					
CIQA4 =	.00000000	1/DEG					
CIQA5 =	.00000000	1/DEG					
CIQA6 =	.00000000	1/DEG					
CIQA7 =	.00000000	1/DEG					
CIQA8 =	.00000000	1/DEG					
ALFREF =	.0000	DEG					
Q811 =	1.0000	LB SEC2/IN					
Q822 =	1.0000	LB SEC2/IN					
Q833 =	1.0000	LB SEC2/IN					
Q844 =	1.0000	LB SEC2/IN					
Q855 =	1.0000	LB SEC2/IN					
Q866 =	1.0000	LB SEC2/IN					
Q877 =	1.0000	LB SEC2/IN					
Q888 =	1.0000	LB SEC2/IN					
P811 =	-.00133						
P812 =	-.00004						
P813 =	-.00921						
P814 =	.00049						
P815 =	.00109						
P816 =	.02804						
P817 =	-.02324						
P818 =	-.00906						

LLP =	38.5000	IN					
KBAR =	.00	IN					
MUC =	.05	FT					
RUNMXF =	230.00						
THRUST =	.0	LB					
MV1V1 =	97.6327	LB SEC2/IN					
M0102 =	.00	LB IN SEC2					
M0202 =	1074108.00	LB IN SEC2					
M0302 =	.00	LB IN SEC2					
XP(2) =	.000	IN					
RHO =	10831E-06	LB SEC2/IN4					
CBAR =	118.2400	IN					
CZAL =	-.0855	1/DEG					
CZDL =	.0000	1/DEG					
CMBT =	.0000	1/DEG					
CZO =	-.8850						
CIQ01 =	.00000000	1/DEG					
CIQ02 =	.00000000	1/DEG					
CIQ03 =	.00000000	1/DEG					
CIQ04 =	.00000000	1/DEG					
CIQ05 =	.00000000	1/DEG					
CIQ06 =	.00000000	1/DEG					
CIQ07 =	.00000000	1/DEG					
CIQ08 =	.00000000	1/DEG					
DELREF =	.0000	DEG					
Q811 =	.050	LB SEC2/IN					
Q822 =	.050	LB SEC2/IN					
Q833 =	.050	LB SEC2/IN					
Q844 =	.050	LB SEC2/IN					
Q855 =	.050	LB SEC2/IN					
Q866 =	.050	LB SEC2/IN					
Q877 =	.050	LB SEC2/IN					
Q888 =	.050	LB SEC2/IN					
P811 =	.00000						
P812 =	.00000						
P813 =	.00000						
P814 =	.00000						
P815 =	.00000						
P816 =	.00000						
P817 =	.00000						
P818 =	.00000						

M0103 =	-115644.00	LB IN SEC2					
M0203 =	.00	LB IN SEC2					
M0303 =	1799952.00	LB IN SEC2					
XP(3) =	211.000	IN					
B =	816.0000	IN					
CYBT =	.0000	1/DEG					
CMAL =	.0000	1/DEG					
CMOL =	.0000	1/DEG					
CMO =	.0000						
Q811 =	597.00	LB/IN					
Q822 =	667.00	LB/IN					
Q833 =	1011.00	LB/IN					
Q844 =	1274.00	LB/IN					
Q855 =	2826.00	LB/IN					
Q866 =	3071.00	LB/IN					
Q877 =	3869.00	LB/IN					
Q888 =	4394.00	LB/IN					
P811 =	.01982						
P812 =	.00189						
P813 =	.05729						
P814 =	.00403						
P815 =	-.04811						
P816 =	-.01129						
P817 =	.00807						
P818 =	.00274						

INITIAL CONDITIONS

VA =	108.2100	KT
VE =	100.2100	KT
VV =	24.0000	FT/SEC
PITCH =	13.2000	DEGREES
ROLL =	2.0000	DEGREES

SINGLE TABLE NO.				VS.				S1			
1	-	XIA1(1)		VS.		S1					
.00000E+00	.21790E+00	.45980E+00	.74140E+00	.10633E+01	.18298E+01	.22758E+01	.32982E+01				
.45054E+01	.59254E+01	.67346E+01	.76337E+01	.86663E+01	.99677E+01	.11994E+02					
.00000E+00	.58460E+00	.11221E+01	.16563E+01	.21860E+01	.32254E+01	.37325E+01	.47140E+01				
.56435E+01	.65106E+01	.69178E+01	.73059E+01	.76739E+01	.80207E+01	.82576E+01					
SINGLE TABLE NO.				VS.				S1			
2	-	XIA1(3)		VS.		S1					
.00000E+00	.21790E+00	.45980E+00	.74140E+00	.10633E+01	.18298E+01	.22758E+01	.32982E+01				
.45054E+01	.59254E+01	.67346E+01	.76337E+01	.86663E+01	.99677E+01	.11994E+02					
.00000E+00	.51310E+00	.10567E+01	.16692E+01	.23519E+01	.39350E+01	.48394E+01	.68879E+01				
.92877E+01	.12113E+02	.13735E+02	.15555E+02	.17681E+02	.20445E+02	.25081E+02					
SINGLE TABLE NO.				VS.				S1			
3	-	XIA1D(1)		VS.		S1					
.00000E+00	.21790E+00	.45980E+00	.74140E+00	.10633E+01	.18298E+01	.22758E+01	.32982E+01				
.45054E+01	.59254E+01	.67346E+01	.76337E+01	.86663E+01	.99677E+01	.11994E+02					
.29417E+01	.24231E+01	.20487E+01	.17644E+01	.15399E+01	.12044E+01	.10741E+01	.86090E+00				
.68860E+00	.53930E+00	.46830E+00	.39600E+00	.31700E+00	.21450E+00	.00000E+00					
SINGLE TABLE NO.				VS.				S1			
4	-	XIA1D(3)		VS.		S1					
.00000E+00	.21790E+00	.45980E+00	.74140E+00	.10633E+01	.18298E+01	.22758E+01	.32982E+01				
.45054E+01	.59254E+01	.67346E+01	.76337E+01	.86663E+01	.99677E+01	.11994E+02					
.24157E+01	.22931E+01	.22079E+01	.21461E+01	.21000E+01	.20384E+01	.20182E+01	.19932E+01				
.19855E+01	.19968E+01	.20123E+01	.20384E+01	.20831E+01	.21717E+01	.24413E+01					
SINGLE TABLE NO.				VS.				VW1			
5	-	FG1(3)		VS.		VW1					
.34700E+01	.32000E+01	.28000E+01	.24000E+01	.20000E+01	.16000E+01	.12000E+01	.80000E+00				
.40000E+00	.00000E+00	.85000E+05	.75200E+05	.64000E+04	.00000E+00						
SINGLE TABLE NO.				VS.				S1			
6	-	API		VS.		S1					
.10000E+01	.00000E+00	.10000E+01	.65000E+00	.18500E+01	.29000E+01	.35000E+01	.60000E+01				
.85000E+01	.10700E+02	.11000E+02	.39592E+00	.39036E+00	.44770E+00						
.18098E+00	.18096E+00	.52810E+00	.56745E+00								
.50266E+00	.56745E+00										
SINGLE TABLE NO.				VS.				S1			
7	-	PA1		VS.		S1					
.00000E+00	.10000E+01	.20000E+01	.30000E+01	.40000E+01	.50000E+01	.60000E+01	.70000E+01				
.80000E+01	.81600E+01	.85000E+01	.90000E+01	.95000E+01	.10000E+02	.10500E+02	.11000E+02				
.11200E+02	.11400E+02	.11200E+02	.30306E+03	.34068E+03	.38891E+03	.45295E+03	.54200E+03				
.24820E+03	.27290E+03	.88898E+03	.93641E+03	.10555E+04	.12950E+04	.16636E+04	.22832E+04				
.68841E+04	.83741E+04										
SINGLE TABLE NO.				VS.				SPR1			
8	-	MU1		VS.		SPR1					
.00000E+00	.10000E+01	.10000E+01	.20000E+01	.20000E+01	.11000E+02						
.10000E+01	.60000E+00	.20000E+00									
SINGLE TABLE NO.				VS.				S1			
9	-	MS1S1		VS.		S1					
.00000E+00	.50000E+00	.10000E+01	.20000E+01	.60000E+01	.11000E+02						
.44000E+01	.26140E+01	.20630E+01	.16660E+01	.17000E+01	.17500E+01						

SINGLE TABLE NO.				VS.				S1			
10	-	BU1(1)		VS.							
.00000E+00	.21790E+00	.45980E+00	.74140E+00	.10633E+01	.18298E+01	.22758E+01	.32982E+01				
.45054E+01	.59254E+01	.67346E+01	.76337E+01	.86663E+01	.99677E+01	.11994E+02	.11994E+02				
-.13329E+01	-.14434E+01	-.14848E+01	-.15046E+01	-.14847E+01	-.13842E+01	-.13135E+01	-.11457E+01				
-.95660E+00	-.75540E+00	-.65120E+00	-.52950E+00	-.43070E+00	-.30180E+00	-.13160E+00					
SINGLE TABLE NO.				VS.				S1			
12	-	BU1(3)		VS.							
.00000E+00	.21790E+00	.45980E+00	.74140E+00	.10633E+01	.18298E+01	.22758E+01	.32982E+01				
.45054E+01	.59254E+01	.67346E+01	.76337E+01	.86663E+01	.99677E+01	.11994E+02	.11994E+02				
-.16110E-01	-.99400E-01	-.16680E+00	-.22280E+00	-.26990E+00	-.34270E+00	-.37020E+00	-.40900E+00				
-.42860E+00	-.42970E+00	-.42270E+00	-.39880E+00	-.38830E+00	-.35020E+00	-.25790E+00					
SINGLE TABLE NO.				VS.				S1			
13	-	BL1(1)		VS.							
.00000E+00	.21790E+00	.45980E+00	.74140E+00	.10633E+01	.18298E+01	.22758E+01	.32982E+01				
.45054E+01	.59254E+01	.67346E+01	.76337E+01	.86663E+01	.99677E+01	.11994E+02	.11994E+02				
-.23586E+01	-.25916E+01	-.27282E+01	-.27999E+01	-.28261E+01	-.27872E+01	-.27367E+01	-.25939E+01				
-.24124E+01	-.21999E+01	-.20803E+01	-.19471E+01	-.17892E+01	-.15714E+01	-.11315E+01					
SINGLE TABLE NO.				VS.				S1			
15	-	BL1(3)		VS.							
.00000E+00	.21790E+00	.45980E+00	.74140E+00	.10633E+01	.18298E+01	.22758E+01	.32982E+01				
.45054E+01	.59254E+01	.67346E+01	.76337E+01	.86663E+01	.99677E+01	.11994E+02	.11994E+02				
-.28510E-01	-.17850E+00	-.30440E+00	-.41460E+00	-.51380E+00	-.69010E+00	-.77130E+00	-.92600E+00				
-.10809E+01	-.12514E+01	-.13503E+01	-.14665E+01	-.16125E+01	-.18233E+01	-.22175E+01					
SINGLE TABLE NO.				VS.				S1			
16	-	MQG1(1,1)		VS.							
.00000E+00	.11000E+02	.10000E+01									
SINGLE TABLE NO.				VS.				S1			
17	-	MQG1(2,2)		VS.							
.00000E+00	.11000E+02	.10000E+01									
SINGLE TABLE NO.				VS.				S1			
18	-	KQG1(1,1)		VS.							
.00000E+00	.55000E+01	.11000E+02									
.57228E+06	.57021E+06	.49168E+06									
SINGLE TABLE NO.				VS.				S1			
19	-	KQG1(2,2)		VS.							
.00000E+00	.55000E+01	.11000E+02									
.57228E+06	.57021E+06	.49168E+06									
SINGLE TABLE NO.				VS.				S1			
20	-	PGA1(1,1)		VS.							
.00000E+00	.55000E+01	.11000E+02									
.17469E+01	.14627E+01	.81831E+00									
SINGLE TABLE NO.				VS.				S1			
22	-	PGA1(3,1)		VS.							
.00000E+00	.55000E+01	.11000E+02									
.44291E+00	.10548E+01	.16507E+01									
SINGLE TABLE NO.				VS.				S1			
23	-	PGA1(1,2)		VS.							
.00000E+00	.55000E+01	.11000E+02									
.18604E+00	.52052E+00	.10933E+01									
SINGLE TABLE NO.				VS.				S1			
25	-	PGA1(3,2)		VS.							
.00000E+00	.55000E+01	.11000E+02									
-.13013E+01	-.14215E+01	-.92123E+00									

RUN NO.	70	PAGE NO.	5
27	-	PBA1(1,1)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
-.11421E-02 -.11421E-02			
29	-	PBA1(3,1)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
.10067E-01 .10067E-01			
30	-	PBA1(1,2)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
.41970E-03 .41970E-03			
32	-	PBA1(3,2)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
.31149E-02 .31149E-02			
33	-	PBA1(1,3)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
-.80396E-02 -.80396E-02			
35	-	PBA1(3,3)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
.18125E-01 .18125E-01			
36	-	PBA1(1,4)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
.87300E-04 .87300E-04			
38	-	PUA1(3,4)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
-.11848E-02 -.11848E-02			
39	-	PBA1(1,5)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
-.57579E-01 -.57579E-01			
41	-	PBA1(3,5)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
-.11618E+00 -.11618E+00			
42	-	PBA1(1,6)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
.35783E-01 .35783E-01			
44	-	PBA1(3,6)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
.35484E-01 .35484E-01			
45	-	PBA1(1,7)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
-.35126E-01 -.35126E-01			
47	-	PBA1(3,7)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
-.12954E-01 -.12954E-01			
48	-	PBA1(1,8)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
-.33843E-02 -.33843E-02			
50	-	PBA1(3,8)	VS. S1
SINGLE TABLE NO.			
.00000E+00 .11000E+02			
.12505E-01 .12505E-01			

RUN NO.	70	PAGE NO.	7
SINGLE TABLE NO.			
.00000E+00	60 - MU2	VS.	SPR2
.10000E-01	.10000E+01		
.20000E+00			
SINGLE TABLE NO.			
.00000E+00	61 - MJ2S2	VS.	S2
.23220E+01	.45970E+01	.67640E+01	.90000E+01
.54486E+01	.49554E+01	.48513E+01	.48302E+01
SINGLE TABLE NO.			
.00000E+00	68 - MQG2(1,1)	VS.	S2
.10000E+01			
.10000E+01			
SINGLE TABLE NO.			
.00000E+00	69 - MQG2(2,2)	VS.	S2
.10000E+01			
.10000E+01			
SINGLE TABLE NO.			
.00000E+00	70 - KQG2(1,1)	VS.	S2
.30348E+05			
.33952E+05			
SINGLE TABLE NO.			
.00000E+00	71 - KQG2(2,2)	VS.	S2
.64397E+05			
.61276E+05			
SINGLE TABLE NO.			
.00000E+00	72 - PGA2(1,1)	VS.	S2
.10659E+01			
.11150E+01			
SINGLE TABLE NO.			
.00000E+00	73 - PGA2(2,1)	VS.	S2
.42319E+00			
.24099E+00			
SINGLE TABLE NO.			
.00000E+00	74 - PGA2(3,1)	VS.	S2
.22885E+00			
.32640E+00			
SINGLE TABLE NO.			
.00000E+00	75 - PGA2(1,2)	VS.	S2
.35143E+00			
.31578E+00			
SINGLE TABLE NO.			
.00000E+00	76 - PGA2(2,2)	VS.	S2
.42163E+00			
.37590E+00			
SINGLE TABLE NO.			
.00000E+00	77 - PGA2(3,2)	VS.	S2
.21315E+00			
.37929E+00			
SINGLE TABLE NO.			
.00000E+00	78 - PBA2(1,1)	VS.	S2
.30984E-02			
.30984E-02			
SINGLE TABLE NO.			
.00000E+00	80 - PBA2(3,1)	VS.	S2
.12376E-01			
.12376E-01			
SINGLE TABLE NO.			
.00000E+00	81 - PRA2(1,2)	VS.	S2
.21600E-04			
.21600E-04			
SINGLE TABLE NO.			
.00000E+00	83 - PBA2(3,2)	VS.	S2
.18361E-02			
.18361E-02			

RUN NO.	70	PAGE NO.	8
SINGLE TABLE NO.	84 -	PBA2(1,3)	VS. S2
.00000E+00 .90000E+01			
-.16060E-01 -16060E-01			
SINGLE TABLE NO.	86 -	PBA2(3,3)	VS. S2
.00000E+00 .90000E+01			
.25657E-01 .25657E-01			
SINGLE TABLE NO.	87 -	PBA2(1,4)	VS. S2
.00000E+00 .90000E+01			
-.29190E-03 -.29190E-03			
SINGLE TABLE NO.	89 -	PBA2(3,4)	VS. S2
.00000E+00 .90000E+01			
.83190E-03 .83190E-03			
SINGLE TABLE NO.	90 -	PBA2(1,5)	VS. S2
.00000E+00 .90000E+01			
.21724E-02 .21724E-02			
SINGLE TABLE NO.	92 -	PBA2(3,5)	VS. S2
.00000E+00 .90000E+01			
.18334E-01 .18334E-01			
SINGLE TABLE NO.	93 -	PBA2(1,6)	VS. S2
.00000E+00 .90000E+01			
.32925E-01 .32925E-01			
SINGLE TABLE NO.	95 -	PBA2(3,6)	VS. S2
.00000E+00 .90000E+01			
.17144E-01 .17144E-01			
SINGLE TABLE NO.	96 -	PBA2(1,7)	VS. S2
.00000E+00 .90000E+01			
-.23021E-01 -.23021E-01			
SINGLE TABLE NO.	98 -	PBA2(3,7)	VS. S2
.00000E+00 .90000E+01			
.15674E-01 .15674E-01			
SINGLE TABLE NO.	99 -	PBA2(1,8)	VS. S2
.00000E+00 .90000E+01			
-.10365E-01 -.10365E-01			
SINGLE TABLE NO.	101 -	PBA2(3,8)	VS. S2
.00000E+00 .90000E+01			
.28220E-03 .28220E-03			
SINGLE TABLE NO.	102 -	MS10G(1)	VS. S1
.00000E+00 .50000E+00		.20000E+01 .60000E+01	.11000E+02
-.16440E-01 -.12050E+01		-.10140E+01 -.86100E+00	-.10500E+01
SINGLE TABLE NO.	103 -	MS10G(2)	VS. S1
.00000E+00 .50000E+00		.20000E+01 .60000E+01	.11000E+02
.11700E+01 .98500E+00		.89900E+00 .82200E+00	.58800E+00
SINGLE TABLE NO.	104 -	MS20G(1)	VS. S2
.00000E+00 .90000E+01			
-.87000E-01 -.50100E+00			

RUN NO. 70		PAGE NO. 9	
SINGLE TABLE NO.		105	VS. S2
.00000E+00	.90000E+01	MSZQG(2)	
-.25700E+00	.45000E+00		
SINGLE TABLE			
.00000E+00	.25000E-01	110	VS. RUNNOM
.30000E+00	.35000E+00	.50000E-01	.75000E-01
.70000E+00	.80000E+00	.40000E+00	.42500E+00
.00000E+00	.15150E+00	.90000E+00	.95000E+00
.66460E+00	.71230E+00	.19380E+00	.25840E+00
.57350E+00	.52080E+00	.74460E+00	.75460E+00
		.45230E+00	.36850E+00
			.15000E+00
			.50000E+00
			.20000E+00
			.55000E+00
			.60230E+00
			.64930E+00

RUN NO.	70		PAGE NO.		10		V						
	T	SEC	FT	VB2	SD	S							
SEC	FT/SEC2	VB1	FT/SEC	DD	FT/SEC2	VB2	SD	S	FT/SEC2	VB3	FT/SEC	VD	FT
.0000	11.677	159.302	169.255	.000	1.0932	2.1643	.0000	.0000	-3.517	61.9776	24.0000	-12.5131	
.0050	11.196	159.354	169.286	.846	1.0903	2.1698	.0084	.0000	-11.297	61.8933	23.9062	-12.3933	
.0100	10.149	159.404	169.316	1.693	1.0771	2.1752	.0166	.0001	-10.148	61.8141	23.8177	-12.2740	
.0150	8.781	159.448	169.344	2.540	1.0485	2.1805	.0244	.0002	-9.635	61.7456	23.7398	-12.1551	
.0200	7.284	159.486	169.366	3.386	1.0031	2.1856	.0319	.0003	-9.198	61.6797	23.6645	-12.0366	
.0250	5.468	159.515	169.380	4.233	.9254	2.1904	.0391	.0005	-8.608	61.6150	23.5904	-11.9184	
.0300	3.313	159.534	169.386	5.080	.8284	2.1947	.0459	.0007	-7.808	61.5545	23.5208	-11.8006	
.0350	1.060	159.542	169.383	5.927	.6544	2.1984	.0521	.0010	-6.641	61.4997	23.4570	-11.6832	
.0400	-1.350	159.539	169.369	6.774	.5824	2.2014	.0576	.0012	-6.350	61.4485	23.3973	-11.5660	
.0450	-3.840	159.523	169.344	7.621	.3573	2.2037	.0628	.0015	-6.244	61.3984	23.3395	-11.4492	
.0500	-6.325	159.495	169.307	8.467	.2762	2.2052	.0674	.0019	-5.791	61.3490	23.2838	-11.3326	
.0550	-8.818	159.454	169.258	9.314	-.0087	2.2058	.0714	.0022	-5.733	61.3008	23.2309	-11.2163	
.0600	-9.637	159.405	169.202	10.160	-.0494	2.2057	.0751	.0026	-6.243	61.2514	23.1782	-11.1003	
.0650	-10.398	159.351	169.140	11.006	-.1801	2.2049	.0785	.0030	-6.854	61.1993	23.1238	-10.9845	
.0700	-11.127	159.295	169.074	11.851	-.3018	2.2033	.0818	.0034	-7.580	61.1441	23.0681	-10.8690	
.0750	-11.790	159.235	169.004	12.697	-.4247	2.2010	.0848	.0038	-8.241	61.0858	23.0112	-10.7538	
.0800	-12.400	159.171	168.930	13.541	-.5196	2.1981	.0878	.0042	-9.002	61.0238	22.9534	-10.6389	
.0850	-12.973	159.105	168.852	14.386	-.7143	2.1947	.0907	.0046	-9.880	60.9575	22.8943	-10.5243	
.0900	-13.504	159.036	168.769	15.230	-.9846	2.1905	.0934	.0051	-10.758	60.8865	22.8342	-10.4099	
.0950	-14.232	158.964	168.682	16.074	-.9894	2.1855	.0960	.0056	-11.763	60.8107	22.7735	-10.2959	
.1000	-15.094	158.888	168.589	16.917	-1.1925	2.1798	.0984	.0061	-12.927	60.7298	22.7126	-10.1822	
.1050	-15.915	158.807	168.490	17.759	-1.3792	2.1732	.1005	.0066	-14.209	60.6430	22.6513	-10.0688	
.1100	-16.696	158.723	168.385	18.602	-1.5715	2.1656	.1023	.0071	-15.566	60.5496	22.5896	-9.9557	
.1150	-17.434	158.635	168.274	19.443	-1.7696	2.1570	.1037	.0076	-16.934	60.4494	22.5275	-9.8429	
.1200	-18.134	158.543	168.157	20.284	-1.9733	2.1473	.1049	.0081	-18.359	60.3420	22.4653	-9.7304	
.1250	-18.804	158.448	168.034	21.125	-2.1748	2.1365	.1056	.0086	-19.929	60.2269	22.4030	-9.6182	
.1300	-19.444	158.349	167.906	21.965	-2.3794	2.1245	.1059	.0092	-21.644	60.1037	22.3404	-9.5063	
.1350	-20.055	158.247	167.771	22.804	-2.5888	2.1115	.1060	.0097	-23.466	59.9718	22.2777	-9.3948	
.1400	-20.394	158.143	167.629	23.642	-2.8042	2.0941	.1027	.0102	-25.256	59.8279	22.2120	-9.2835	
.1450	-20.941	158.037	167.474	24.480	-3.0339	2.0550	.0804	.0107	-28.140	59.6336	22.1461	-9.1727	
.1500	-21.674	157.926	167.294	25.317	-3.2748	2.0054	.0524	.0110	-30.170	59.3644	21.9403	-9.0625	
.1550	-22.693	157.803	167.079	26.153	-3.5329	1.9626	.0386	.0112	-32.256	58.9981	21.6989	-8.9534	
.1600	-30.160	157.661	166.825	26.988	-3.8027	1.9173	.0310	.0114	-34.495	58.5500	21.4025	-8.8456	
.1650	-36.368	157.492	166.518	27.821	-4.0826	1.8574	.0196	.0115	-36.881	57.9972	21.0356	-8.7395	
.1700	-44.570	157.344	166.199	28.653	-4.3737	1.7471	-.0307	.0115	-39.314	57.3142	20.5668	-8.6354	
.1750	-51.903	157.279	165.941	29.483	-4.6758	1.6301	-.0829	.0112	-41.791	56.5543	20.0328	-8.5339	
.1800	-55.145	157.210	165.659	30.312	-4.9899	1.5267	-.1205	.0107	-44.317	55.7108	19.4470	-8.4352	
.1850	-60.795	157.117	165.332	31.140	-5.3147	1.4526	-.1291	.0101	-46.891	54.7803	18.8149	-8.3395	
.1900	3.617	157.063	165.027	31.966	-5.6501	1.4007	-.1169	.0095	-49.504	53.7806	18.1429	-8.2471	
.1950	6.857	157.091	164.803	32.790	-6.0005	1.3384	-.1160	.0089	-52.162	52.7876	17.4877	-8.1580	
.2000	6.371	157.122	164.573	33.614	-6.3641	1.2702	-.1191	.0083	-54.865	51.7534	16.8175	-8.0722	
.2050	5.645	157.149	164.335	34.436	-6.7410	1.1946	-.1282	.0077	-57.611	50.6914	16.1476	-7.9898	
.2100	5.299	157.173	164.091	35.257	-7.1307	1.1167	-.1391	.0070	-60.448	49.6111	15.4876	-7.9107	
.2150	4.075	157.194	163.841	36.077	-7.5343	1.0425	-.1451	.0063	-63.296	48.5021	14.8278	-7.8349	
.2200	2.765	157.209	163.580	36.895	-7.9538	.9649	-.1535	.0056	-66.149	47.3673	14.1724	-7.7624	
.2250	1.402	157.217	163.313	37.713	-8.3887	.8807	-.1681	.0048	-69.004	46.2236	13.5379	-7.6931	
.2300	.166	157.218	163.039	38.529	-8.8387	.7966	-.1820	.0039	-71.865	45.0631	12.9166	-7.6270	
.2350	-.893	157.213	162.758	39.343	-9.2932	.7105	-.1970	.0029	-74.721	43.8776	12.3005	-7.5639	
.2400	-1.765	157.203	162.472	40.156	-9.7537	.6253	-.2106	.0019	-77.576	42.6687	11.6910	-7.5039	
.2450	-2.914	157.189	162.182	40.968	-10.2226	.5430	-.2207	.0008	-80.422	41.4422	11.0941	-7.4470	
.2500	-4.148	157.169	161.888	41.778	-10.7012	.4623	-.2289	-.0003	-83.267	40.1988	10.5103	-7.3929	
.2550	-5.330	157.142	161.589	42.587	-11.1822	.3800	-.2382	-.0015	-86.115	38.9348	9.9357	-7.3418	
.2600	-6.613	157.110	161.286	43.394	-11.6658	.2942	-.2505	-.0027	-88.961	37.6471	9.3672	-7.2936	
.2650	-8.154	157.070	160.978	44.200	-12.1522	.2072	-.2637	-.0040	-91.804	36.3383	8.8072	-7.2481	
.2700	-9.924	157.022	160.666	45.004	-12.6446	.1197	-.2773	-.0053	-94.646	35.0138	8.2612	-7.2054	

SEC	OMEGBD1	OMEGB1	PHID	PHI	OMEGBD2	THETC	THET	OMEGBD3	OMEGB3	PSID	PSI
RAD/SEC	RAD/SEC	RAD/SEC	RAD/SEC	DEG	RAD/SEC	RAD/SEC	DEG	RAD/SEC	RAD/SEC	DEG	DEG
.0000	.0000	.0000	.0000	2.000	-1.7711	.0000	13.200	.0000	.0000	.0000	.000
.0050	.0002	.0000	.0000	2.000	-1.0183	.0006	13.200	.0004	.0000	.0000	.000
.0100	.0009	.0000	.0000	2.000	-1.5247	.0012	13.200	.0021	.0000	.0000	.000
.0150	.0024	.0000	.0000	2.000	-1.0104	.0027	13.201	.0057	.0000	.0001	.000
.0200	.0046	.0000	.0000	2.000	-1.0000	.0048	13.202	.0112	.0001	.0002	.000
.0250	.0084	.0001	.0002	2.000	-1.2263	.0070	13.203	.0203	.0002	.0004	.000
.0300	.0128	.0001	.0003	2.000	-1.1077	.0094	13.205	.0312	.0003	.0006	.000
.0350	.0217	.0002	.0004	2.000	-1.1280	.0119	13.208	.0514	.0005	.0010	.001
.0400	.0230	.0003	.0006	2.000	-1.1662	.0143	13.212	.0563	.0008	.0013	.001
.0450	.0334	.0005	.0009	2.001	-1.2374	.0164	13.216	.0810	.0011	.0018	.001
.0500	.0346	.0006	.0012	2.001	-1.3846	.0180	13.221	.0844	.0016	.0022	.002
.0550	.0472	.0009	.0015	2.002	-1.5078	.0190	13.226	.1144	.0021	.0028	.003
.0600	.0451	.0011	.0019	2.002	-1.6579	.0193	13.232	.1099	.0026	.0034	.003
.0650	.0479	.0013	.0022	2.002	-1.8025	.0189	13.237	.1168	.0032	.0040	.005
.0700	.0499	.0016	.0027	2.003	-1.9150	.0177	13.242	.1217	.0039	.0046	.006
.0750	.0517	.0019	.0031	2.004	-1.0445	.0159	13.247	.1262	.0046	.0052	.007
.0800	.0517	.0022	.0035	2.005	-1.1821	.0135	13.251	.1263	.0053	.0059	.009
.0850	.0576	.0025	.0039	2.006	-1.3136	.0104	13.254	.1401	.0060	.0065	.011
.0900	.0675	.0028	.0044	2.007	-1.4433	.0067	13.256	.1635	.0067	.0072	.012
.0950	.0615	.0031	.0049	2.008	-1.5644	.0024	13.257	.1630	.0075	.0078	.015
.1000	.0671	.0034	.0054	2.010	-1.6828	.0025	13.257	.1730	.0083	.0085	.017
.1050	.0712	.0038	.0059	2.011	-1.8075	.0081	13.256	.1828	.0092	.0092	.019
.1100	.0753	.0042	.0064	2.013	-1.9349	.0143	13.252	.1924	.0101	.0099	.022
.1150	.0793	.0046	.0070	2.015	-2.0686	.0212	13.247	.2019	.0111	.0106	.025
.1200	.0833	.0050	.0076	2.017	-2.2048	.0287	13.240	.2174	.0121	.0114	.028
.1250	.0865	.0054	.0082	2.019	-2.3360	.0368	13.230	.2274	.0132	.0122	.032
.1300	.0897	.0059	.0088	2.022	-2.4624	.0456	13.218	.2357	.0144	.0131	.035
.1350	.0928	.0064	.0094	2.025	-2.5834	.0550	13.203	.2477	.0156	.0140	.039
.1400	.0977	.0070	.0104	2.027	-2.8176	.0652	13.136	.2654	.0166	.0162	.043
.1450	.1027	.0077	.0111	2.030	-3.4733	.0777	13.165	.2968	.0204	.0175	.053
.1500	.1077	.0083	.0119	2.032	-4.5083	.0943	13.110	.3074	.0219	.0182	.058
.1550	.1127	.0089	.0123	2.031	-5.6282	.1164	13.073	.3186	.0240	.0194	.063
.1600	.1177	.0095	.0126	2.025	-6.8392	.1441	13.026	.3257	.0279	.0222	.069
.1650	.1227	.0101	.0129	2.013	-8.4911	.1792	12.969	.3322	.0320	.0252	.076
.1700	.1277	.0107	.0132	1.996	-7.2524	.2177	12.901	.3540	.0368	.0298	.083
.1750	.1327	.0113	.0135	1.978	-7.5784	.2508	12.824	.3740	.0420	.0329	.089
.1800	.1377	.0119	.0138	1.959	-8.6266	.2880	12.735	.3940	.0478	.0368	.094
.1850	.1427	.0125	.0141	1.939	-9.8944	.3310	12.634	.4140	.0528	.0413	.098
.1900	.1477	.0131	.0144	1.916	-7.5919	.3725	12.522	.4340	.0578	.0452	.100
.1950	.1527	.0137	.0147	1.891	-7.1563	.4048	12.411	.4540	.0628	.0487	.103
.2000	.1577	.0143	.0150	1.864	-7.4476	.4381	12.270	.4740	.0678	.0519	.105
.2050	.1627	.0149	.0156	1.836	-7.5448	.4723	12.130	.4940	.0728	.0550	.108
.2100	.1677	.0155	.0161	1.807	-7.6126	.5069	11.979	.5140	.0778	.0581	.111
.2150	.1727	.0161	.0167	1.778	-7.8600	.5423	11.818	.5340	.0828	.0612	.114
.2200	.1777	.0167	.0173	1.747	-7.9113	.5786	11.647	.5540	.0878	.0643	.118
.2250	.1827	.0173	.0179	1.715	-7.9360	.6150	11.465	.5740	.0928	.0674	.121
.2300	.1877	.0179	.0185	1.682	-8.0581	.6517	11.273	.5940	.0978	.0705	.125
.2350	.1927	.0185	.0191	1.648	-8.1635	.6890	10.856	.6140	.1028	.0736	.129
.2400	.1977	.0191	.0197	1.612	-8.1902	.7266	10.632	.6340	.1078	.0767	.133
.2450	.2027	.0197	.0203	1.576	-8.1665	.7643	10.396	.6540	.1128	.0798	.137
.2500	.2077	.0203	.0209	1.538	-8.1849	.8019	10.150	.6740	.1178	.0829	.142
.2550	.2127	.0209	.0215	1.498	-8.2043	.8397	9.893	.6940	.1228	.0860	.147
.2600	.2177	.0215	.0221	1.457	-8.2547	.8776	9.625	.7140	.1278	.0891	.152
.2650	.2227	.0221	.0227	1.414	-8.2447	.9156	9.369	.7340	.1328	.0922	.157
.2700	.2277	.0227	.0233	1.369	-8.2.48	.9535	9.114	.7540	.1378	.0953	.162

RUN NO. 70			PAGE NO. 13		
T	FS1	FGW11	FGW12	FGW13	FAX11
SEC	LB	LB	LB	LB	LB
.0000	3079.	0.	0.	0.	-17.
.0050	2960.	0.	0.	0.	929.
.0100	3129.	0.	0.	0.	826.
.0150	2781.	0.	0.	0.	943.
.0200	2940.	0.	0.	0.	986.
.0250	3539.	0.	0.	0.	916.
.0300	3333.	0.	0.	0.	1074.
.0350	3285.	0.	0.	0.	1049.
.0400	3138.	0.	0.	0.	1004.
.0450	2826.	0.	0.	0.	1031.
.0500	2954.	0.	0.	0.	978.
.0550	3107.	0.	0.	0.	1005.
.0600	3206.	0.	0.	0.	1059.
.0650	3295.	0.	0.	0.	1065.
.0700	3143.	0.	0.	0.	1085.
.0750	2966.	0.	0.	0.	1070.
.0800	2900.	0.	0.	0.	1038.
.0850	2912.	0.	0.	0.	1040.
.0900	3042.	0.	0.	0.	1049.
.0950	3153.	0.	0.	0.	1074.
.1000	3146.	0.	0.	0.	1102.
.1050	3064.	0.	0.	0.	1104.
.1100	2951.	0.	0.	0.	1096.
.1150	2894.	0.	0.	0.	1087.
.1200	2939.	0.	0.	0.	1085.
.1250	3027.	0.	0.	0.	1101.
.1300	3095.	0.	0.	0.	1123.
.1350	3096.	0.	0.	0.	1139.
.1400	3034.	0.	0.	0.	1142.
.1450	2991.	0.	0.	0.	1137.
.1500	3006.	0.	0.	0.	1152.
.1550	3081.	0.	0.	0.	1190.
.1600	3168.	0.	0.	0.	1246.
.1650	3211.	0.	0.	0.	1318.
.1700	3363.	0.	0.	0.	1189.
.1750	3556.	0.	0.	0.	1165.
.1800	3553.	0.	0.	0.	1270.
.1850	3680.	0.	0.	0.	1328.
.1900	3792.	0.	0.	0.	1159.
.1950	3929.	0.	0.	0.	1148.
.2000	4012.	0.	0.	0.	1191.
.2050	4230.	0.	0.	0.	1232.
.2100	4249.	0.	0.	0.	1273.
.2150	4116.	0.	0.	0.	1290.
.2200	3976.	0.	0.	0.	1272.
.2250	3917.	0.	0.	0.	1258.
.2300	4023.	0.	0.	0.	1255.
.2350	4211.	0.	0.	0.	1270.
.2400	4345.	0.	0.	0.	1298.
.2450	4374.	0.	0.	0.	1311.
.2500	4302.	0.	0.	0.	1306.
.2550	4220.	0.	0.	0.	1285.
.2600	4223.	0.	0.	0.	1263.
.2650	4322.	0.	0.	0.	1258.
.2700	4462.	0.	0.	0.	1271.

FAX12	FAX13	SIDD	SID	S1	FFBU1	FFBL1
LB	LB	IN/SEC2	IN/SEC	IN	LB	LB
3.	88.	878.6	.000	-.0286	.0	.0
0.	-1444.	3677.3	-3.957	-.0247	-124.4	-127.7
0.	-1271.	6336.9	-3.160	-.0253	-94.6	-97.9
0.	-1393.	4889.2	-2.792	-.0246	-127.8	-131.2
0.	-1423.	5468.2	-3.492	-.0244	-140.7	-144.0
0.	-1270.	5758.1	-3.345	-.0266	-28.3	-31.6
-1.	-1360.	5143.4	-3.026	-.0265	-36.0	-39.3
-1.	-1355.	5346.1	-3.209	-.0261	-55.9	-59.3
-1.	-1338.	5211.5	-3.003	-.0257	-71.8	-75.1
-1.	-1409.	5105.4	-3.076	-.0246	-131.7	-135.1
-1.	-1376.	5457.0	-3.293	-.0246	-127.2	-130.5
-2.	-1362.	5434.0	-3.226	-.0253	-96.2	-99.6
-2.	-1372.	5416.3	-3.250	-.0256	-77.3	-80.7
-2.	-1352.	5407.5	-3.187	-.0261	-56.6	-59.9
-2.	-1377.	5218.5	-3.061	-.0257	-74.2	-77.5
-2.	-1402.	5218.1	-3.102	-.0250	-109.1	-112.5
-2.	-1404.	5294.1	-3.148	-.0247	-126.5	-129.8
-2.	-1412.	5348.6	-3.203	-.0246	-129.0	-132.4
-2.	-1403.	5442.0	-3.259	-.0250	-109.6	-112.9
-2.	-1395.	5419.8	-3.214	-.0255	-85.9	-89.2
-3.	-1405.	5333.5	-3.155	-.0256	-81.7	-85.1
-3.	-1417.	5283.3	-3.121	-.0253	-93.7	-97.0
-3.	-1433.	5258.0	-3.113	-.0249	-114.3	-117.6
-3.	-1445.	5302.9	-3.162	-.0246	-128.8	-132.2
-3.	-1444.	5377.4	-3.212	-.0247	-125.0	-128.4
-3.	-1441.	5406.7	-3.223	-.0250	-109.9	-113.2
-3.	-1440.	5392.1	-3.203	-.0253	-95.4	-98.8
-4.	-1445.	5341.3	-3.160	-.0254	-91.7	-95.0
-5.	-1458.	5294.9	-3.139	-.0252	-101.0	-104.3
-44.	-1471.	5309.8	-3.158	-.0250	-110.4	-113.8
-83.	-1476.	5348.3	-3.192	-.0250	-110.6	-113.9
-106.	-1488.	5403.7	-3.224	-.0252	-99.3	-102.6
-97.	-1512.	5353.8	-3.219	-.0255	-82.6	-86.0
2.	-1435.	5594.6	-3.313	-.0262	-50.4	-53.8
45.	-1378.	5490.4	-3.230	-.0270	-11.3	-14.6
38.	-1420.	5301.5	-3.185	-.0271	-5.1	-8.4
31.	-1420.	5425.6	-3.265	-.0274	13.1	9.7
-8.	-1325.	6451.7	-3.577	-.0285	-52.9	-56.3
-27.	-1296.	5496.0	-3.415	-.0296	-118.9	-122
-16.	-1303.	5410.7	-3.379	-.0304	-78.3	-81.6
-1.	-1279.	5492.3	-3.310	-.0313	-33.2	-36.5
-9.	-1285.	5306.9	-3.168	-.0316	-18.3	-21.5
-16.	-1312.	5188.7	-3.116	-.0313	-37.3	-40.5
-9.	-1336.	5185.0	-3.125	-.0307	-63.9	-67.2
-12.	-1360.	5243.1	-3.189	-.0304	-80.3	-83.6
-12.	-1368.	5367.9	-3.280	-.0306	-68.4	-71.7
-9.	-1367.	5421.8	-3.297	-.0313	-35.4	-38.6
-14.	-1378.	5378.7	-3.255	-.0319	-6.4	-9.6
-18.	-1397.	5300.2	-3.194	-.0321	4.7	1.4
-71.	-1426.	5224.6	-3.149	-.0319	-4.4	-7.7
-20.	-1455.	5220.0	-3.165	-.0316	-20.4	-23.6
-21.	-1472.	5282.3	-3.220	-.0315	-24.3	-27.6
-21.	-1479.	5350.2	-3.266	-.0318	-10.1	-13.3
-20.	-1481.	5379.2	-3.278	-.0323	15.3	12.0

SEC	T	PH2	PA2	PHS2	OMW2D	OMW2	QG2DD1	QG2D1	IN/SEC	QG21	IN/SEC2	QG2D2	IN/SEC	QG22	IN	VM2
LB/IN2	LB/IN2	LB/IN2	LB/IN2	LB/IN2	RAD/SEC2	RAD/SEC	IN/SEC2	IN/SEC								
.0000	-605.7	605.7	605.7	.0	.00	.000	193.53	.000	.000	.0000	587.25	.000	.0000	.0000	.0000	42.986
.0050	-22.1	606.0	606.0	-83.7	.00	.000	-39.63	-.075	.0002	.0002	-129.89	-.309	.0006	.0006	.0006	41.556
.0100	-29.1	605.5	605.5	97.4	.00	.000	34.07	-.131	-.0004	-.0004	169.44	-.319	-.0016	-.0016	-.0016	40.112
.0150	-19.4	605.2	605.2	45.9	.00	.000	49.94	.070	-.0006	-.0006	150.92	.531	-.0010	-.0010	-.0010	38.677
.0200	-9.8	605.4	605.4	-17.9	.00	.000	1.50	.165	.0001	.0001	-125.16	.453	.0022	.0022	.0022	37.261
.0250	-13.9	605.6	605.6	.8	.00	.000	-27.60	.035	.0007	.0007	-139.72	-.509	.0021	.0021	.0021	35.848
.0300	-20.5	605.6	605.6	44.0	.00	.000	-7.50	-.113	.0005	.0005	127.35	-.709	-.0014	-.0014	-.0014	34.431
.0350	-19.5	605.5	605.5	44.9	.00	.000	20.89	-.120	-.0001	-.0001	227.56	.184	-.0029	-.0029	-.0029	33.016
.0400	-16.3	605.5	605.5	22.0	.00	.000	26.82	-.037	-.0005	-.0005	19.03	.738	.0000	.0000	.0000	31.609
.0450	-16.3	605.5	605.5	17.2	.00	.000	19.13	.035	-.0004	-.0004	-156.18	.160	.0027	.0027	.0027	30.207
.0500	-17.9	605.5	605.5	28.7	.00	.000	11.49	.064	-.0002	-.0002	-50.78	-.603	.0014	.0014	.0014	28.804
.0550	-18.0	605.5	605.5	31.5	.00	.000	4.02	.058	.0002	.0002	148.85	-.463	-.0016	-.0016	-.0016	27.404
.0600	-17.2	605.5	605.5	26.3	.00	.000	-2.72	.013	.0004	.0004	155.73	.263	-.0021	-.0021	-.0021	26.007
.0650	-17.4	605.5	605.5	26.2	.00	.000	-1.26	-.048	.0003	.0003	-8.31	.516	.0003	.0003	.0003	24.615
.0700	-18.0	605.5	605.5	30.5	.00	.000	9.33	-.076	.0000	.0000	-99.33	.034	.0019	.0019	.0019	23.225
.0750	-17.8	605.5	605.5	30.3	.00	.000	19.37	-.047	-.0003	-.0003	-10.51	-.438	.0008	.0008	.0008	21.837
.0800	-17.3	605.5	605.5	26.2	.00	.000	19.93	.010	-.0003	-.0003	113.55	-.289	-.0012	-.0012	-.0012	20.453
.0850	-17.3	605.5	605.5	25.5	.00	.000	12.47	.047	-.0002	-.0002	107.83	.101	-.0014	-.0014	-.0014	19.074
.0900	-17.8	605.5	605.5	29.3	.00	.000	4.66	.043	.0001	.0001	.64	.334	.0003	.0003	.0003	17.699
.0950	-18.0	605.5	605.5	31.4	.00	.000	1.45	.010	.0003	.0003	-55.40	.009	.0013	.0013	.0013	16.327
.1000	-17.6	605.5	605.5	29.1	.00	.000	3.18	-.027	.0002	.0002	3.42	-.297	.0005	.0005	.0005	14.959
.1050	-17.3	605.5	605.5	26.3	.00	.000	7.75	-.046	.0001	.0001	84.41	-.197	-.0008	-.0008	-.0008	13.595
.1100	-17.5	605.5	605.5	27.0	.00	.000	13.00	-.039	-.0001	-.0001	81.23	.121	-.0009	-.0009	-.0009	12.237
.1150	-17.9	605.5	605.5	29.9	.00	.000	16.13	-.011	-.0002	-.0002	10.47	.220	.0002	.0002	.0002	10.883
.1200	-17.9	605.5	605.5	30.9	.00	.000	14.65	.022	-.0002	-.0002	-27.91	.005	.0009	.0009	.0009	9.532
.1250	-17.6	605.4	605.4	29.0	.00	.000	8.97	.037	.0000	.0000	10.19	-.203	.0004	.0004	.0004	8.187
.1300	-17.5	605.4	605.4	27.3	.00	.000	3.28	.020	.0002	.0002	65.23	-.141	-.0005	-.0005	-.0005	6.846
.1350	-17.6	605.4	605.4	28.1	.00	.000	2.22	-.014	.0002	.0002	64.63	.074	-.0006	-.0006	-.0006	5.510
.1400	5.4	605.6	605.6	-84.3	-843.69	-.923	-1598.69	-1.778	-.0012	-.0012	2824.95	3.378	.0025	.0025	.0025	4.185
.1450	320.3	611.2	611.2	-931.5	-2647.64	-9.712	-4516.83	-18.023	-.0445	-.0445	3496.17	22.351	.0656	.0656	.0656	3.032
.1500	2051.1	627.8	627.8	-2678.9	-4383.19	-27.272	-5168.75	-43.261	-.1963	-.1963	-3004.71	24.946	.1980	.1980	.1980	2.220
.1550	3701.3	651.7	651.7	-4353.1	-6381.95	-53.990	-3591.06	-65.793	-.4723	-.4723	-5645.55	-.431	.2649	.2649	.2649	1.612
.1600	4610.5	677.4	677.4	-5287.8	-8965.72	-92.102	-1884.27	-79.007	-.8379	-.8379	-151.76	-17.127	.2092	.2092	.2092	1.041
.1650	5067.9	710.7	710.7	-5778.6	-11820.46	-144.258	-2215.93	-88.186	-1.2551	-1.2551	6067.14	-1.389	.1500	.1500	.1500	.571
.1700	4971.9	746.3	746.3	-5718.2	-2754.22	-187.805	36211.64	-33.634	-1.6584	-1.6584	10207.52	49.056	.2551	.2551	.2551	.217
.1750	4765.0	783.8	783.8	-5548.9	-828.11	-195.427	32006.04	154.912	-1.3446	-1.3446	-7619.48	56.850	.5581	.5581	.5581	-.015
.1800	5364.7	839.2	839.2	-6203.9	-453.60	-198.433	-1073.56	237.757	-.2929	-.2929	-14302.95	-7.008	.6969	.6969	.6969	-.132
.1850	5659.0	895.7	895.7	-6554.7	-556.93	-200.989	-33079.63	144.555	.7307	.7307	-780.03	-49.783	.5258	.5258	.5258	-.286
.1900	5412.3	966.6	966.6	-6378.9	-484.26	-203.980	-37363.86	-47.100	.9836	.9836	11756.17	-16.006	.3344	.3344	.3344	-.431
.1950	5786.5	1042.7	1042.7	-6829.1	.00	-205.153	-15043.02	-178.301	.3650	.3650	6823.32	33.772	.3941	.3941	.3941	-.359
.2000	6315.2	1139.3	1139.3	-7454.5	.00	-205.153	14990.29	-178.082	-.5893	-.5893	-6533.08	33.987	.5921	.5921	.5921	-.151
.2050	6092.1	1237.8	1237.8	-7329.9	.00	-205.153	32710.41	-49.388	-1.1955	-1.1955	-9529.07	-12.878	.6512	.6512	.6512	-.057
.2100	6060.8	1334.8	1334.8	-7395.6	.00	-205.153	24617.79	104.582	-1.0403	-1.0403	897.81	-37.363	.5032	.5032	.5032	-.074
.2150	5863.8	1471.5	1471.5	-7335.3	.00	-205.153	-795.58	167.245	-.3070	-.3070	9045.70	-7.751	.3729	.3729	.3729	-.135
.2200	5338.9	1593.2	1593.2	-6932.0	.00	-205.153	-23045.46	102.347	.4139	.4139	4098.83	30.256	.4398	.4398	.4398	-.162
.2250	5187.8	1708.7	1708.7	-6896.5	.00	-205.153	-26949.71	-31.831	.5984	.5984	-5777.77	25.013	.5991	.5991	.5991	-.114
.2300	5265.5	1878.3	1878.3	-7143.8	.00	-205.153	-10894.22	-132.902	.1526	.1526	-7213.03	-12.302	.6338	.6338	.6338	-.034
.2350	5342.5	2045.2	2045.2	-7387.7	.00	-205.153	11931.95	-129.135	-.5507	-.5507	757.09	-30.298	.5102	.5102	.5102	.024
.2400	5330.9	2234.4	2234.4	-7565.3	.00	-205.153	23966.37	-32.139	-.9792	-.9792	6837.50	-21.786	.4020	.4020	.4020	.078
.2450	5030.2	2439.8	2439.8	-7470.0	.00	-205.153	17433.42	78.836	-.8487	-.8487	3262.65	21.396	.4437	.4437	.4437	.139
.2500	4597.6	2680.7	2680.7	-7278.2	.00	-205.153	-1579.35	120.720	-.3095	-.3095	-3949.05	19.067	.5602	.5602	.5602	.172
.2550	4108.1	2892.2	2892.2	-7000.4	.00	-205.153	-17710.18	68.310	.1970	.1970	-5181.38	-7.251	.5923	.5923	.5923	.146
.2600	3828.6	3134.2	3134.2	-6962.8	.00	-205.153	-19529.61	-31.828	.2921	.2921	414.30	-20.330	.5113	.5113	.5113	.117
.2650	3677.6	3396.7	3396.7	-7074.3	.00	-205.153	-6488.42	-101.342	-.0685	-.0685	4336.56	-5.823	.4376	.4376	.4376	.158
.2700	3627.5	3640.6	3640.6	-7268.2	.00	-205.153	10356.26	-90.212	-.5829	-.5829	1826.82	12.148	.4587	.4587	.4587	.282

T	SEC	FS2	FGW21	FGW22	FGW23	FAX21	FAX22	FAX23	S2DD	S2D	S2	FFBU2	FFBL2
LB	LB	LB	LB	LB	LB	LB	LB	LB	IN/SEC2	IN/SEC	IN	LB	LB
.0000	12984.	0.	0.	0.	0.	-32.	5.	135.	2262.8	.000	-.0321	.0	.0
.0050	-1099.	0.	0.	0.	0.	-222.	600.	-572.	-392.3	-.494	-.0284	.0	.0
.0100	2131.	0.	0.	0.	0.	-221.	230.	-51.	227.1	-1.389	-.0342	.0	.0
.0150	3024.	0.	0.	0.	0.	-214.	158.	26.	396.9	-.096	-.0380	.0	.0
.0200	1482.	0.	0.	0.	0.	-183.	310.	-231.	101.8	-.703	-.0356	.0	.0
.0250	606.	0.	0.	0.	0.	-176.	413.	-361.	-57.2	-.177	-.0328	.0	.0
.0300	1211.	0.	0.	0.	0.	-206.	374.	-246.	72.1	-.388	-.0333	.0	.0
.0350	1764.	0.	0.	0.	0.	-207.	315.	-153.	183.9	-.226	-.0348	.0	.0
.0400	1550.	0.	0.	0.	0.	-175.	318.	-213.	135.7	-.083	-.0348	.0	.0
.0450	1250.	0.	0.	0.	0.	-143.	333.	-275.	72.7	.043	-.0341	.0	.0
.0500	1325.	0.	0.	0.	0.	-135.	338.	-249.	91.3	-.110	-.0340	.0	.0
.0550	1457.	0.	0.	0.	0.	-142.	350.	-204.	124.7	-.096	-.0343	.0	.0
.0600	1413.	0.	0.	0.	0.	-137.	360.	-209.	112.6	-.027	-.0343	.0	.0
.0650	1376.	0.	0.	0.	0.	-111.	347.	-232	94.0	-.055	-.0342	.0	.0
.0700	1472.	0.	0.	0.	0.	-98.	326.	-227.	103.4	-.108	-.0343	.0	.0
.0750	1556.	0.	0.	0.	0.	-107.	328.	-204.	119.0	-.082	-.0346	.0	.0
.0800	1513.	0.	0.	0.	0.	-118.	352.	-197.	112.4	-.028	-.0345	.0	.0
.0850	1460.	0.	0.	0.	0.	-109.	362.	-205.	97.6	-.041	-.0344	.0	.0
.0900	1521.	0.	0.	0.	0.	-82.	346.	-207.	99.3	-.095	-.0345	.0	.0
.0950	1638.	0.	0.	0.	0.	-63.	330.	-196.	112.0	-.107	-.0347	.0	.0
.1000	1680.	0.	0.	0.	0.	-62.	336.	-184.	116.9	-.065	-.0349	.0	.0
.1050	1640.	0.	0.	0.	0.	-66.	355.	-183.	107.4	-.037	-.0349	.0	.0
.1100	1630.	0.	0.	0.	0.	-58.	360.	-186.	98.9	-.060	-.0348	.0	.0
.1150	1706.	0.	0.	0.	0.	-37.	346.	-184.	102.7	-.098	-.0349	.0	.0
.1200	1802.	0.	0.	0.	0.	-18.	335.	-177.	111.7	-.098	-.0352	.0	.0
.1250	1841.	0.	0.	0.	0.	-9.	342.	-169.	112.9	-.068	-.0353	.0	.0
.1300	1833.	0.	0.	0.	0.	-5.	356.	-167.	106.0	-.053	-.0353	.0	.0
.1350	1853.	0.	0.	0.	0.	4.	360.	-167.	101.3	-.072	-.0353	.0	.0
.1400	-823.	-1833.	-20.	-9036.	909.	-1303.	-8068.	3338.9	3.672	3.672	-.0327	.0	.0
.1450	-22744.	-6262.	-219.	-27482.	2283.	-4061.	-26572.	6728.2	28.516	28.516	.0414	.0	.0
.1500	-65599.	-11056.	-777.	-40481.	1416.	-4202.	-44703.	3914.8	58.129	58.129	.2647	.0	.0
.1550	-106771.	-16940.	-1644.	-50208.	-2713.	-4002.	-59251.	574.0	67.933	67.933	.5868	.0	.0
.1600	-129800.	-25029.	-3464.	-59347.	-9896.	-5678.	-69515.	834.1	70.147	70.147	.9314	.0	.0
.1650	-141945.	-34465.	-10580.	-66864.	-18099.	-12131.	-77384.	1075.1	76.529	76.529	1.2972	.0	.0
.1700	-140548.	-8309.	-14761.	-72529.	-7182.	-20760.	-87932.	-28.2	71.773	71.773	1.6723	.0	.0
.1750	-136420.	-2556.	-9454.	-76245.	3622.	-19113.	-91166.	3059.4	82.629	82.629	2.0519	.0	.0
.1800	-152583.	-1417.	-7528.	-78107.	18534.	-12185.	-93289.	294.7	91.918	91.918	2.4944	.0	.0
.1850	-161232.	-1767.	-8202.	-80584.	29231.	-5919.	-93208.	-1350.5	87.525	87.525	2.9466	.0	.0
.1900	-156923.	-1560.	-7685.	-82894.	29919.	-4206.	-92393.	804.3	92.395	92.395	3.3734	.0	.0
.1950	-167968.	-817.	-6917.	-81744.	21040.	-8103.	-93536.	-337.0	92.395	92.395	3.8158	.0	.0
.2000	-183307.	-784.	-5891.	-78417.	10929.	-10043.	-96555.	-2403.6	83.347	83.347	4.2596	.0	.0
.2050	-180207.	-769.	-5169.	-76912.	4000.	-12524.	-95291.	-634.3	75.759	75.759	4.6533	.0	.0
.2100	-181790.	-772.	-4877.	-77192.	5700.	-9533.	-93943.	-1039.7	72.947	72.947	5.0261	.0	.0
.2150	-180297.	-782.	-4371.	-78162.	14672.	-4640.	-92077.	-1760.4	65.213	65.213	5.3730	.0	.0
.2200	-170387.	-786.	-3968.	-78594.	24061.	-2949.	-89585.	-545.3	59.445	59.445	5.6820	.0	.0
.2250	-169513.	-778.	-3754.	-77817.	26498.	-3782.	-89020.	-341.7	58.033	58.033	5.9753	.0	.0
.2300	-175598.	-765.	-3480.	-76548.	19851.	-5294.	-89461.	-614.9	55.699	55.699	6.2602	.0	.0
.2350	-181601.	-756.	-3215.	-75616.	9422.	-6269.	-89654.	-585.3	53.032	53.032	6.5319	.0	.0
.2400	-185986.	-748.	-2927.	-74751.	3472.	-6160.	-89346.	-948.9	49.521	49.521	6.7890	.0	.0
.2450	-183685.	-738.	-2598.	-73777.	6050.	-5563.	-87756.	-978.2	44.775	44.775	7.0248	.0	.0
.2500	-179027.	-733.	-2283.	-73252.	14103.	-4206.	-85918.	-1180.0	39.504	39.504	7.2360	.0	.0
.2550	-172259.	-737.	-2053.	-73667.	20488.	-2704.	-84061.	-672.3	35.181	35.181	7.4215	.0	.0
.2600	-171400.	-741.	-1898.	-74136.	20337.	-1603.	-83383.	-629.1	32.405	32.405	7.5904	.0	.0
.2650	-174204.	-735.	-1734.	-73472.	14253.	-2156.	-83169.	-478.2	29.956	29.956	7.7458	.0	.0
.2700	-179021.	-715.	-1558.	-71484.	7168.	-3797.	-82934.	-583.2	27.779	27.779	7.8904	.0	.0

T	SEC	PH3	PA3	PHS3	OMW3D	RAD/SEC	OMW3	QG31DD	QG31D	IN/SEC	QG31	IN/SEC	QG32DD	IN/SEC	QG32	IN	VW3
		LB/IN2	LB/IN2	LB/IN2				IN/SEC2	IN/SEC		IN		IN/SEC2		IN		IN
.0000	-605.7	605.7	606.0	0	.00	.000	.000	193.53	.000	.000	.0000	.000	587.75	.000	.0000	.000	47.959
.0050	-22.1	606.0	605.5	-83.7	.00	.000	.000	29.63	.075	.000	.0002	.000	129.89	.309	.0006	.000	46.529
.0100	-29.1	605.5	605.5	97.4	.00	.000	.000	34.06	.131	.000	.0004	.000	169.43	.319	.0016	.000	45.084
.0150	-19.4	605.2	605.2	46.0	.00	.000	.000	49.93	.070	.000	.0006	.000	150.93	.531	.0010	.000	43.649
.0200	-9.8	605.4	605.4	-17.9	.00	.000	.000	1.51	.165	.000	.0007	.000	125.11	.453	.0022	.000	42.233
.0250	-13.9	605.6	605.6	1.0	.00	.000	.000	-27.57	.035	.000	.0007	.000	139.67	.509	.0021	.000	40.820
.0300	-20.5	605.6	605.6	44.2	.00	.000	.000	-7.47	.113	.000	.0005	.000	127.40	.709	.0014	.000	39.404
.0350	-19.6	605.5	605.5	45.1	.00	.000	.000	20.88	.119	.000	.0001	.000	227.53	.184	.0029	.000	37.989
.0400	-16.3	605.5	605.5	22.3	.00	.000	.000	26.87	.036	.000	.0005	.000	19.20	.738	.0000	.000	36.582
.0450	-16.3	605.5	605.5	17.4	.00	.000	.000	19.09	.035	.000	.0004	.000	156.32	.160	.0027	.000	35.180
.0500	-18.0	605.5	605.5	28.9	.00	.000	.000	11.52	.064	.000	.0002	.000	50.65	.603	.0014	.000	33.778
.0550	-8.0	605.5	605.5	31.8	.00	.000	.000	3.98	.057	.000	.0002	.000	148.80	.463	.0016	.000	32.378
.0600	-17.3	605.5	605.5	26.6	.00	.000	.000	-2.65	.013	.000	.0004	.000	155.93	.264	.0021	.000	30.983
.0650	-17.4	605.5	605.5	26.4	.00	.000	.000	1.21	.047	.000	.0003	.000	8.29	.516	.0003	.000	29.592
.0700	-18.0	605.5	605.5	30.7	.00	.000	.000	-9.39	.076	.000	.0000	.000	99.17	.033	.0019	.000	28.203
.0750	-17.8	605.5	605.5	30.5	.00	.000	.000	19.45	.047	.000	.0003	.000	10.14	.439	.0008	.000	26.818
.0800	-17.3	605.5	605.5	26.4	.00	.000	.000	20.04	.010	.000	.0003	.000	114.01	.289	.0012	.000	25.436
.0850	-17.3	605.5	605.5	25.6	.00	.000	.000	12.48	.047	.000	.0002	.000	107.80	.191	.0014	.000	24.059
.0900	-17.9	605.5	605.5	29.5	.00	.000	.000	4.59	.042	.000	.0001	.000	.38	.334	.0003	.000	22.687
.0950	-18.0	605.5	605.5	31.7	.00	.000	.000	1.56	.009	.000	.0003	.000	55.06	.009	.0013	.000	21.318
.1000	-17.7	605.5	605.5	29.3	.00	.000	.000	3.23	.026	.000	.0002	.000	3.59	.297	.0005	.000	19.954
.1050	-17.3	605.5	605.5	26.5	.00	.000	.000	7.78	.046	.000	.0001	.000	84.45	.197	.0008	.000	18.595
.1100	-17.5	605.5	605.5	27.3	.00	.000	.000	13.03	.039	.000	.0001	.000	81.34	.121	.0009	.000	17.240
.1150	-17.9	605.5	605.5	30.2	.00	.000	.000	16.18	.011	.000	.0002	.000	10.67	.220	.0002	.000	15.891
.1200	-18.0	605.4	605.4	31.1	.00	.000	.000	14.70	.022	.000	.0002	.000	27.73	.005	.0009	.000	14.546
.1250	-17.7	605.4	605.4	29.4	.00	.000	.000	9.06	.036	.000	.0000	.000	10.49	.203	.0004	.000	13.206
.1300	-17.5	605.4	605.4	27.7	.00	.000	.000	3.42	.020	.000	.0002	.000	65.66	.141	.0005	.000	11.872
.1350	-17.6	605.4	605.4	28.4	.00	.000	.000	2.35	.014	.000	.0002	.000	64.95	.074	.0006	.000	10.543
.1400	-18.0	605.4	605.4	30.8	.00	.000	.000	5.16	.041	.000	.0001	.000	12.85	.141	.0001	.000	9.219
.1450	-19.0	605.4	605.4	37.8	.00	.000	.000	12.29	.045	.000	.0001	.000	8.52	.016	.0005	.000	7.901
.1500	-18.9	605.3	605.3	39.1	.00	.000	.000	18.51	.012	.000	.0002	.000	25.75	.126	.0002	.000	6.592
.1550	-18.0	605.3	605.3	32.5	.00	.000	.000	14.57	.029	.000	.0002	.000	49.99	.062	.0003	.000	5.295
.1600	25.2	605.7	605.7	-189.1	-1075.96	-1.581	-1726.99	-2.466	.024	.000	.0024	.000	3076.71	.4952	.0047	.000	4.029
.1650	449.2	612.6	612.6	-1061.8	-2768.39	-11.252	-3967.93	-17.583	.0478	.000	.0478	.000	2415.61	.21.302	.0716	.000	2.983
.1700	2270.3	630.3	630.3	-2900.7	-4380.81	-29.106	-4367.69	-39.329	.1892	.000	.1892	.000	3710.59	.18.245	.1838	.000	2.293
.1750	3743.7	654.1	654.1	-4397.8	-6255.32	-55.501	-2892.50	-57.962	.4356	.000	.4356	.000	4718.92	.6.429	.2155	.000	1.790
.1800	4457.1	678.8	678.8	-5135.9	-8707.45	-92.648	-1422.85	-68.282	.7544	.000	.7544	.000	902.46	.17.240	.1443	.000	1.327
.1850	4231.8	711.6	711.6	-5543.4	-11541.03	-143.327	-2062.31	-75.698	.1.1130	.000	.1.1130	.000	5481.09	.002	.0918	.000	.984
.1900	4792.2	746.8	746.8	-5539.0	-1684.15	-179.272	3559.39	-3.140	.1.4146	.000	.1.4146	.000	8189.56	.45.278	.1945	.000	.770
.1950	4536.2	783.4	783.4	-5319.6	-368.86	-183.414	25347.58	164.005	.9898	.000	.9898	.000	7950.42	.45.830	.4568	.000	.664
.2000	4774.1	834.4	834.4	-5608.5	-137.82	-184.516	-6501.53	214.349	.0235	.000	.0235	.000	12254.77	.13.142	.5477	.000	.633
.2050	4845.1	886.2	886.2	-5731.3	-171.61	-185.280	-32640.11	108.456	.8858	.000	.8858	.000	597.11	.46.151	.3718	.000	.568
.2100	4667.2	948.9	948.9	-5616.0	-97.62	-186.092	-32571.26	-67.371	.9883	.000	.9883	.000	10721.24	.11.936	.2049	.000	.529
.2150	4791.0	1018.8	1018.8	-5809.8	.00	-186.209	-10860.85	-180.748	.3240	.000	.3240	.000	5480.91	.33.914	.2703	.000	.646
.2200	5013.3	1093.6	1093.6	-6106.9	.00	-186.209	17637.26	-161.767	.5924	.000	.5924	.000	6872.81	.29.159	.4544	.000	.862
.2250	4913.1	1186.1	1186.1	-6099.1	.00	-186.209	31550.76	-29.358	.1.0996	.000	.1.0996	.000	8562.90	.15.825	.4913	.000	.993
.2300	4729.0	1271.7	1271.7	-6000.8	.00	-186.209	21398.51	112.437	.8704	.000	.8704	.000	1528.93	.35.719	.3408	.000	1.016
.2350	4398.5	1364.8	1364.8	-5763.2	.00	-186.209	-3471.26	159.493	.1380	.000	.1380	.000	8633.70	.22.18	.2218	.000	.986
.2400	3960.6	1476.2	1476.2	-5436.8	.00	-186.209	-23618.57	85.952	.5181	.000	.5181	.000	3498.63	.29.167	.2912	.000	.988
.2450	3744.6	1580.8	1580.8	-5325.4	.00	-186.209	-24948.15	-44.421	.6247	.000	.6247	.000	5805.11	.22.058	.4391	.000	1.051
.2500	3796.6	1682.7	1682.7	-5479.3	.00	-186.209	-8079.41	-132.390	.1470	.000	.1470	.000	6582.60	.13.695	.4617	.000	1.133
.2550	3890.9	1817.3	1817.3	-5708.2	.00	-186.209	13233.76	-117.661	.5232	.000	.5232	.000	1230.14	.28.567	.3392	.000	1.208
.2600	3814.2	1963.0	1963.0	-5777.2	.00	-186.209	21339.58	-19.630	.8872	.000	.8872	.000	6476.88	.5.863	.2420	.000	1.282
.2650	3522.8	2096.1	2096.1	-5618.9	.00	-186.209	15288.54	83.327	.7114	.000	.7114	.000	2756.34	.20.581	.2867	.000	1.347
.2700	3106.0	2252.7	2252.7	-5350.7	.00	-186.209	-3225.23	115.043	.1763	.000	.1763	.000	3934.50	.16.735	.3943	.000	1.381

SEC	T	FS3	FWG31	FWG32	FWG33	FAX31	FAX32	FAX33	S3 D	S3I	S3	FFBU3	FFBL3
LB	LB	LB	LB	LB	LB	LB	LB	LB	IN/SEC2	IN/SEC	IN	LB	LB
.0000	12984.	0.	0.	0.	0.	-32.	5.	135.	2262.8	.000	-.0321	.0	.0
.0050	-1099.	0.	0.	0.	0.	-222.	-600.	-572.	-392.3	-.495	-.0284	.0	.0
.0100	2131.	0.	0.	0.	0.	-222.	-230.	-51.	227.0	-1.389	-.0342	.0	.0
.0150	3026.	0.	0.	0.	0.	-214.	-157.	26.	396.8	-.097	-.0380	.0	.0
.0200	1486.	0.	0.	0.	0.	-184.	-308.	-231.	101.8	.701	-.0356	.0	.0
.0250	615.	0.	0.	0.	0.	-177.	-410.	-361.	-57.2	.175	-.0328	.0	.0
.0300	1225.	0.	0.	0.	0.	-208.	-370.	-245.	72.2	-.391	-.0333	.0	.0
.0350	1785.	0.	0.	0.	0.	-209.	-309.	-152.	183.7	-.230	-.0348	.0	.0
.0400	1579.	0.	0.	0.	0.	-178.	-310.	-212.	136.4	.080	-.0348	.0	.0
.0450	1285.	0.	0.	0.	0.	-148.	-324.	-273.	72.3	.040	-.0341	.0	.0
.0500	1367.	0.	0.	0.	0.	-140.	-327.	-247.	91.9	-.114	-.0341	.0	.0
.0550	1508.	0.	0.	0.	0.	-148.	-337.	-202.	124.2	-.100	-.0344	.0	.0
.0600	1470.	0.	0.	0.	0.	-143.	-346.	-206.	113.4	-.029	-.0344	.0	.0
.0650	1437.	0.	0.	0.	0.	-117.	-332.	-229.	94.7	-.057	-.0343	.0	.0
.0700	1538.	0.	0.	0.	0.	-105.	-310.	-224.	104.3	-.110	-.0345	.0	.0
.0750	1627.	0.	0.	0.	0.	-114.	-312.	-201.	120.1	-.084	-.0347	.0	.0
.0800	1589.	0.	0.	0.	0.	-126.	-335.	-193.	113.8	-.030	-.0347	.0	.0
.0850	1537.	0.	0.	0.	0.	-117.	-345.	-202.	97.8	-.042	-.0346	.0	.0
.0900	1603.	0.	0.	0.	0.	-91.	-327.	-204.	98.4	-.099	-.0347	.0	.0
.0950	1727.	0.	0.	0.	0.	-72.	-310.	-193.	112.9	-.110	-.0350	.0	.0
.1000	1774.	0.	0.	0.	0.	-71.	-316.	-181.	117.3	-.068	-.0351	.0	.0
.1050	1740.	0.	0.	0.	0.	-76.	-334.	-179.	107.6	-.040	-.0351	.0	.0
.1100	1738.	0.	0.	0.	0.	-68.	-337.	-182.	99.4	-.065	-.0351	.0	.0
.1150	1822.	0.	0.	0.	0.	-48.	-322.	-180.	103.4	-.101	-.0352	.0	.0
.1200	1926.	0.	0.	0.	0.	-29.	-310.	-172.	112.3	-.101	-.0355	.0	.0
.1250	1972.	0.	0.	0.	0.	-21.	-315.	-164.	113.9	-.072	-.0356	.0	.0
.1300	1974.	0.	0.	0.	0.	-18.	-328.	-162.	107.6	-.075	-.0357	.0	.0
.1350	2001.	0.	0.	0.	0.	-9.	-331.	-162.	102.8	-.075	-.0357	.0	.0
.1400	2096.	0.	0.	0.	0.	4.	-317.	-155.	87.5	-.118	-.0359	.0	.0
.1450	2389.	0.	0.	0.	0.	27.	-307.	-102.	96.6	-.215	-.0365	.0	.0
.1500	2715.	0.	0.	0.	0.	70.	-350.	-26.	129.0	-.192	-.0373	.0	.0
.1550	2825.	0	0	0	0	121.	-417.	7.	117.2	-.099	-.0377	.0	.0
.1600	-2664.	-2364.	-7.	-11536.	1214.	1000.	-8032.	4067.7	6.385	-.0313	-.0313	.0	.0
.1650	-25937.	-6572.	131.	-28275.	2255.	2566.	-22411.	6798.5	32.833	.0606	.0606	.0	.0
.1700	-71052.	-10984.	534.	-39311.	850.	850.	-37466.	3096.7	59.323	.2993	.2993	.0	.0
.1750	-107875.	-16353.	1089.	-47360.	-3386.	-3386.	-49006.	197.6	66.018	.6188	.6188	.0	.0
.1800	-126070.	-23692.	2271.	-54760.	-10157.	643.	-56889.	943.2	67.682	.9513	.9513	.0	.0
.1850	-136164.	-32385.	7774.	-60263.	-17726.	5358.	-63530.	1305.5	74.905	1.3067	1.3067	.0	.0
.1900	-136141.	-4820.	8803.	-63680.	-5576.	10378.	-65227.	-198.1	71.821	1.6778	1.6778	.0	.0
.1950	-130779.	-1066.	4763.	-65375.	4678.	8280.	-64818.	1850.7	78.150	2.0483	2.0483	.0	.0
.2000	-137926.	-399.	3157.	-65865.	18072.	2044.	-64091.	144.7	83.665	2.4567	2.4567	.0	.0
.2050	-140963.	-500.	3414.	-66906.	26466.	-3458.	-62285.	-761.4	81.133	2.8706	2.8706	.0	.0
.2100	-138142.	-286.	2638.	-67540.	25440.	-5009.	-60827.	424.7	79.773	3.2703	3.2703	.0	.0
.2150	-142900.	-657.	3448.	-65663.	16691.	-870.	-62300.	-309.3	81.991	3.6769	3.6769	.0	.0
.2200	-150179.	-622.	2950.	-62214.	6204.	3607.	-63933.	-1365.2	77.155	4.0770	4.0770	.0	.0
.2250	-149964.	-601.	2512.	-60120.	392.	5297.	-63249.	-1032.2	70.984	4.4466	4.4466	.0	.0
.2300	-147527.	-597.	2222.	-59749.	2831.	2283.	-60983.	-1176.6	65.802	4.7809	4.7809	.0	.0
.2350	-141680.	-602.	1933.	-60231.	11631.	-1942.	-58271.	-1285.6	59.357	5.1020	5.1020	.0	.0
.2400	-133664.	-602.	1701.	-60193.	20068.	-3423.	-56215.	-691.7	54.352	5.3850	5.3850	.0	.0
.2450	-130935.	-592.	1564.	-59188.	21404.	-2097.	-55770.	-249.4	52.252	5.6506	5.6506	.0	.0
.2500	-134719.	-579.	1463.	-57879.	14387.	-136.	-56395.	-268.5	51.176	5.9092	5.9092	.0	.0
.2550	-140357.	-567.	1340.	-56676.	4533.	892.	-56904.	-605.4	49.220	6.1609	6.1609	.0	.0
.2600	-142074.	-555.	1169.	-55491.	-488.	985.	-56455.	-861.4	45.464	6.3981	6.3981	.0	.0
.2650	-138214.	-544.	1000.	-54442.	2660.	558.	-55072.	-858.4	41.245	6.6149	6.6149	.0	.0
.2700	-131866.	-539.	856.	-53902.	10489.	-501.	-53356.	-818.4	37.123	6.8107	6.8107	.0	.0

RUN NO.			70		PAGE NO.				18				THGTG DEG			
T	ALPHA	BETA	VAIR	FP1	FP2	FP3	MP1	MP2	MP3	OMG1DD	OMGID	THGTG	DEG			
SEC	DEG	DEG	FT/SEC	LB	LB	LB	IN LB	IN LB	IN LB	RAD/SEC2	RAD/SEC					
0000	20.734	.757	182.767	21106.	0.	-55756.	0.	0.	0.	.000	.000	.000	.000			
0050	20.704	.759	182.786	21060.	0.	-55724.	0.	0.	0.	.000	.000	.000	.000			
0100	20.675	.761	182.804	21017.	0.	-55695.	0.	0.	0.	.000	.000	.000	.000			
0150	20.650	.762	182.822	20980.	0.	-55670.	0.	0.	0.	.000	.000	.000	.000			
0200	20.626	.764	182.833	20944.	0.	-55644.	0.	0.	0.	.000	.000	.000	.000			
0250	20.604	.765	182.838	20909.	0.	-55615.	0.	0.	0.	.000	.000	.000	.000			
0300	20.585	.766	182.835	20876.	0.	-55584.	0.	0.	0.	.000	.000	.000	.000			
0350	20.568	.768	182.823	20846.	0.	-55553.	0.	0.	0.	.000	.000	.000	.000			
0400	20.553	.769	182.802	20817.	0.	-55520.	0.	0.	0.	.000	.000	.000	.000			
0450	20.541	.770	182.770	20789.	0.	-55482.	0.	0.	0.	.000	.000	.000	.000			
0500	20.530	.770	182.726	20761.	0.	-55440.	0.	0.	0.	.000	.000	.000	.000			
0550	20.520	.771	182.671	20733.	0.	-55393.	0.	0.	0.	.000	.000	.000	.000			
0600	20.512	.771	182.608	20704.	0.	-55342.	0.	0.	0.	.000	.000	.000	.000			
0650	20.502	.771	182.540	20674.	0.	-55288.	0.	0.	0.	.000	.000	.000	.000			
0700	20.493	.770	182.468	20642.	0.	-55230.	0.	0.	0.	.000	.000	.000	.000			
0750	20.483	.770	182.391	20608.	0.	-55169.	0.	0.	0.	.000	.000	.000	.000			
0800	20.472	.769	182.310	20572.	0.	-55105.	0.	0.	0.	.000	.000	.000	.000			
0850	20.460	.768	182.225	20533.	0.	-55036.	0.	0.	0.	.000	.000	.000	.000			
0900	20.446	.767	182.135	20491.	0.	-54963.	0.	0.	0.	.000	.000	.000	.000			
0950	20.432	.765	182.041	20447.	0.	-54886.	0.	0.	0.	.000	.000	.000	.000			
1000	20.417	.764	181.942	20399.	0.	-54804.	0.	0.	0.	.000	.000	.000	.000			
1050	20.400	.762	181.836	20348.	0.	-54716.	0.	0.	0.	.000	.000	.000	.000			
1100	20.381	.759	181.724	20293.	0.	-54622.	0.	0.	0.	.000	.000	.000	.000			
1150	20.361	.756	181.606	20234.	0.	-54523.	0.	0.	0.	.000	.000	.000	.000			
1200	20.339	.753	181.483	20171.	0.	-54417.	0.	0.	0.	.000	.000	.000	.000			
1250	20.314	.750	181.353	20103.	0.	-54305.	0.	0.	0.	.000	.000	.000	.000			
1300	20.288	.746	181.217	20031.	0.	-54186.	0.	0.	0.	.000	.000	.000	.000			
1350	20.259	.742	181.076	19953.	0.	-54060.	0.	0.	0.	.000	.000	.000	.000			
1400	20.226	.736	180.927	19869.	0.	-53926.	0.	0.	0.	.000	.000	.000	.000			
1450	20.179	.723	180.760	19757.	0.	-53759.	0.	0.	0.	.000	.000	.000	.000			
1500	20.109	.706	180.562	19604.	0.	-53542.	0.	0.	0.	.000	.000	.000	.000			
1550	20.011	.692	180.319	19397.	0.	-53260.	0.	0.	0.	.000	.000	.000	.000			
1600	19.891	.677	180.031	19147.	0.	-52919.	0.	0.	0.	.000	.000	.000	.000			
1650	19.740	.656	179.683	18840.	0.	-52502.	0.	0.	0.	.000	.000	.000	.000			
1700	19.547	.619	179.312	18466.	0.	-52012.	0.	0.	0.	.000	.000	.000	.000			
1750	19.320	.578	178.995	18058.	0.	-51507.	0.	0.	0.	.000	.000	.000	.000			
1800	19.067	.542	178.650	17610.	0.	-50950.	0.	0.	0.	.000	.000	.000	.000			
1850	18.788	.517	178.257	17122.	0.	-50329.	0.	0.	0.	.000	.000	.000	.000			
1900	18.482	.498	177.884	16606.	0.	-49682.	0.	0.	0.	.000	.000	.000	.000			
1950	18.168	.476	177.596	16103.	0.	-49070.	0.	0.	0.	.000	.000	.000	.000			
2000	17.839	.452	177.302	15587.	0.	-48435.	0.	0.	0.	.000	.000	.000	.000			
2050	17.501	.426	177.003	15066.	0.	-47781.	0.	0.	0.	.000	.000	.000	.000			
2100	17.155	.398	176.701	14544.	0.	-47116.	0.	0.	0.	.000	.000	.000	.000			
2150	16.798	.372	176.394	14017.	0.	-46432.	0.	0.	0.	.000	.000	.000	.000			
2200	16.433	.345	176.081	13488.	0.	-45731.	0.	0.	0.	.000	.000	.000	.000			
2250	16.063	.315	175.765	12963.	0.	-45022.	0.	0.	0.	.000	.000	.000	.000			
2300	15.686	.285	175.445	12441.	0.	-44302.	0.	0.	0.	.000	.000	.000	.000			
2350	15.300	.255	175.120	11918.	0.	-43565.	0.	0.	0.	.000	.000	.000	.000			
2400	14.905	.225	174.793	11396.	0.	-42813.	0.	0.	0.	.000	.000	.000	.000			
2450	14.502	.196	174.465	10877.	0.	-42050.	0.	0.	0.	.000	.000	.000	.000			
2500	14.093	.167	174.135	10362.	0.	-41275.	0.	0.	0.	.000	.000	.000	.000			
2550	13.674	.138	173.803	9851.	0.	-40488.	0.	0.	0.	.000	.000	.000	.000			
2600	13.247	.108	173.468	9342.	0.	-39685.	0.	0.	0.	.000	.000	.000	.000			
2650	12.810	.077	173.132	8838.	0.	-38869.	0.	0.	0.	.000	.000	.000	.000			
2700	12.367	.046	172.793	8341.	0.	-38042.	0.	0.	0.	.000	.000	.000	.000			

RUN NO.		70		PAGE 10.		20		QBDD1		QB1		QBDD2		QB2		QBDD3		QB3		QBDD4		QB4	
SEC	IN/SEC2	IN/SEC	IN	IN/SEC2	IN/SEC	IN	IN/SEC2	IN/SEC	IN	IN/SEC2	IN/SEC	IN	IN/SEC2	IN/SEC	IN	IN/SEC2	IN/SEC	IN	IN/SEC2	IN/SEC	IN	IN/SEC2	IN
.0000	.00	.000	.0000	.00	.000	.0000	.00	.000	.0000	.0000	.000	.0000	.00	.0000	.0000	.00	.000	.0000	.00	.000	.0000	.0000	.0000
.0050	11.68	.026	.0000	1.08	.002	.0000	35.95	.081	.0000	.0000	.081	.0001	2.04	.005	.0000	35.95	.081	.0001	2.04	.005	.0000	.0000	.0000
.0100	27.01	.122	.0004	2.46	.011	.0000	83.98	.378	.0000	.0000	.378	.0012	4.47	.021	.0000	83.98	.378	.0012	4.47	.021	.0001	.0001	.0001
.0150	42.97	.298	.0014	3.87	.027	.0001	134.93	.926	.0001	.0001	.926	.0043	6.64	.049	.0001	134.93	.926	.0043	6.64	.049	.0002	.0002	.0002
.0200	57.65	.550	.0035	5.12	.050	.0003	182.41	1.723	.0003	.0003	1.723	.0108	8.18	.086	.0003	182.41	1.723	.0108	8.18	.086	.0006	.0006	.0006
.0250	59.46	.870	.0070	6.07	.078	.0006	221.05	2.738	.0006	.0006	2.738	.0219	8.83	.129	.0006	221.05	2.738	.0219	8.83	.129	.0011	.0011	.0011
.0300	77.48	1.239	.0123	6.63	.110	.0011	247.36	3.915	.0011	.0011	3.915	.0385	8.45	.173	.0011	247.36	3.915	.0385	8.45	.173	.0019	.0019	.0019
.0350	81.40	1.638	.0195	6.78	.143	.0017	260.00	5.189	.0017	.0017	5.189	.0612	7.07	.212	.0017	260.00	5.189	.0612	7.07	.212	.0028	.0028	.0028
.0400	81.04	2.046	.0237	6.52	.177	.0025	258.00	6.488	.0025	.0025	6.488	.0904	4.77	.242	.0025	258.00	6.488	.0904	4.77	.242	.0040	.0040	.0040
.0450	77.22	2.441	.0399	5.93	.208	.0035	243.72	7.744	.0035	.0035	7.744	.1260	1.81	.259	.0035	243.72	7.744	.1260	1.81	.259	.0052	.0052	.0052
.0500	69.41	2.807	.0530	4.96	.235	.0046	215.73	8.891	.0046	.0046	8.891	.1677	-1.81	.258	.0046	215.73	8.891	.1677	-1.81	.258	.0065	.0065	.0065
.0550	58.30	3.126	.0679	3.70	.257	.0058	175.96	9.870	.0058	.0058	9.870	.2147	-5.78	.239	.0058	175.96	9.870	.2147	-5.78	.239	.0078	.0078	.0078
.0600	36.40	3.360	.0841	1.60	.270	.0072	93.35	10.537	.0072	.0072	10.537	.2659	-10.09	.199	.0072	93.35	10.537	.2659	-10.09	.199	.0089	.0089	.0089
.0650	14.95	3.487	.1013	-4.3	.273	.0085	11.73	10.796	.0085	.0085	10.796	.3194	-13.86	.138	.0085	11.73	10.796	.3194	-13.86	.138	.0097	.0097	.0097
.0700	-5.90	3.508	.1188	-2.37	.265	.0099	-67.33	10.652	.0099	.0099	10.652	.3731	-16.99	.060	.0099	-67.33	10.652	.3731	-16.99	.060	.0102	.0102	.0102
.0750	-25.91	3.427	.1362	-4.20	.249	.0112	-142.07	10.124	.0112	.0112	10.124	.4252	-19.43	-.031	.0112	-142.07	10.124	.4252	-19.43	-.031	.0103	.0103	.0103
.0800	-44.88	3.249	.1529	-5.89	.224	.0123	-210.91	9.237	.0123	.0123	9.237	.4738	-21.12	-.133	.0123	-210.91	9.237	.4738	-21.12	-.133	.0099	.0099	.0099
.0850	-62.48	2.980	.1686	-7.43	.190	.0134	-272.06	8.025	.0134	.0134	8.025	.5171	-22.02	-.241	.0134	-272.06	8.025	.5171	-22.02	-.241	.0090	.0090	.0090
.0900	-78.54	2.626	.1826	-8.78	.149	.0142	-324.27	6.528	.0142	.0142	6.528	.5536	-22.12	-.352	.0142	-324.27	6.528	.5536	-22.12	-.352	.0075	.0075	.0075
.0950	-92.88	2.196	.1947	-9.95	.102	.0149	-365.16	4.796	.0149	.0149	4.796	.5820	-21.65	-.462	.0149	-365.16	4.796	.5820	-21.65	-.462	.0055	.0055	.0055
.1000	-105.27	1.699	.2045	-10.93	.050	.0153	-394.09	2.893	.0153	.0153	2.893	.6012	-20.57	-.568	.0153	-394.09	2.893	.6012	-20.57	-.568	.0029	.0029	.0029
.1050	-115.95	1.145	.2116	-11.71	-.007	.0154	-412.69	.871	.0154	.0154	.871	.6107	-18.85	-.666	.0154	-412.69	.871	.6107	-18.85	-.666	.0002	.0002	.0002
.1100	-124.75	.542	.2158	-12.28	-.067	.0152	-420.59	-1.218	.0152	.0152	-1.218	.6098	-16.57	-.755	.0152	-420.59	-1.218	.6098	-16.57	-.755	.0038	.0038	.0038
.1150	-131.56	-.100	.2169	-12.64	-.129	.0147	-417.74	-3.319	.0147	.0147	-3.319	.5985	-13.80	-.831	.0147	-417.74	-3.319	.5985	-13.80	-.831	.0077	.0077	.0077
.1200	-136.29	-.770	.2148	-12.78	-.193	.0139	-404.36	-5.379	.0139	.0139	-5.379	.5767	-10.63	-.893	.0139	-404.36	-5.379	.5767	-10.63	-.893	.0121	.0121	.0121
.1250	-138.89	-1.459	.2092	-12.71	-.257	.0128	-380.93	-7.346	.0128	.0128	-7.346	.5449	-7.17	-.937	.0128	-380.93	-7.346	.5449	-7.17	-.937	.0166	.0166	.0166
.1300	-139.35	-2.155	.2002	-12.42	-.319	.0113	-348.18	-9.173	.0113	.0113	-9.173	.5035	-3.54	-.964	.0113	-348.18	-9.173	.5035	-3.54	-.964	.0214	.0214	.0214
.1350	-137.67	-2.849	.1877	-11.92	-.380	.0096	-307.03	-10.813	.0096	.0096	-10.813	.4534	.16	-.973	.0096	-307.03	-10.813	.4534	.16	-.973	.0262	.0262	.0262
.1400	-248.23	-3.653	.1716	-28.05	-.457	.0075	-497.92	-12.491	.0075	.0075	-12.491	.3955	-3.88	-.971	.0075	-497.92	-12.491	.3955	-3.88	-.971	.0311	.0311	.0311
.1450	-472.04	-5.482	.1493	-61.23	-.684	.0047	-914.07	-16.090	.0047	.0047	-16.090	.3250	-15.62	-1.022	.0047	-914.07	-16.090	.3250	-15.62	-1.022	.0361	.0361	.0361
.1500	-616.64	-8.237	.1153	-83.46	-1.050	.0004	-1141.49	-21.307	.0004	.0004	-21.307	.2319	-21.83	-1.118	.0004	-1141.49	-21.307	.2319	-21.83	-1.118	.0414	.0414	.0414
.1550	-708.38	-11.562	.0659	-98.67	-1.507	.0059	-1232.45	-27.279	.0059	.0059	-27.279	.1107	-24.27	-1.234	.0059	-1232.45	-27.279	.1107	-24.27	-1.234	.0473	.0473	.0473
.1600	-925.71	-15.505	-.0012	-133.37	-2.066	.0148	-1555.82	-33.967	.0148	.0148	-33.967	.0417	-34.90	-1.372	.0148	-1555.82	-33.967	.0417	-34.90	-1.372	.0538	.0538	.0538
.1650	-1168.23	-20.790	-.0915	-172.73	-2.838	.0270	-1897.69	-42.715	.0270	.0270	-42.715	.2327	-46.82	-1.580	.0270	-1897.69	-42.715	.2327	-46.82	-1.580	.0611	.0611	.0611
.1700	-1304.13	-26.998	-.2107	-180.29	-3.735	.0434	-2320.69	-53.124	.0434	.0434	-53.124	.4713	-54.01	-1.832	.0434	-2320.69	-53.124	.4713	-54.01	-1.832	.0696	.0696	.0696
.1750	-1355.46	-33.682	-.3623	-185.81	-4.653	.0643	-2338.15	-64.900	.0643	.0643	-64.900	.7663	-53.25	-2.103	.0643	-2338.15	-64.900	.7663	-53.25	-2.103	.0795	.0795	.0795
.1800	-1351.03	-40.466	-.5476	-186.38	-5.585	.0899	-2156.89	-76.195	.0899	.0899	-76.195	.1194	-47.84	-2.358	.0899	-2156.89	-76.195	.1194	-47.84	-2.358	.0906	.0906	.0906
.1850	-1309.47	-47.136	-.7667	-182.81	-6.511	.1202	-1859.11	-86.277	.1202	.1202	-86.277	.15262	-39.55	-2.577	.1202	-1859.11	-86.277	.15262	-39.55	-2.577	.1030	.1030	.1030
.1900	-1229.52	-53.514	-1.0185	-156.52	-7.368	.1549	-1815.89	-95.443	.1549	.1549	-95.443	.19804	-31.71	-2.757	.1549	-1815.89	-95.443	.19804	-31.71	-2.757	.1163	.1163	.1163
.1950	-1057.65	-59.285	-1.3009	-128.36	-8.085	.1936	-1344.91	-103.511	.1936	.1936	-103.511	.24788	-15.96	-2.880	.1936	-1344.91	-103.511	.24788	-15.96	-2.880	.1305	.1305	.1305
.2000	-828.97	-64.007	-1.6096	-94.16	-8.642	.2355	-715.76	-108.675	.2355	.2355	-108.675	.30105	3.33	-2.911	.2355	-715.76	-108.675	.30105	3.33	-2.911	.1450	.1450	.1450
.2050	-620.63	-67.627	-1.9391	-63.42	-9.035	.2798	-137.35	-110.792	.2798	.2798	-110.792	.35604	20.27	-2.852	.2798	-137.35	-110.792	.35604	20.27	-2.852	.1594	.1594	.1594
.2100	-422.00	-70.243	-2.2842	-34.22	-9.281	.3256	396.73	-110.152	.3256	.3256	-110.152	.41139	35.21	-2.713	.3256	396.73	-110.152	.41139	35.21	-2.713	.1734	.1734	.1734
.2150	-196.30	-71.812	-2.6398	-1.88	-9.374	.3723	970.33	-106.778	.3723	.3723	-106.778	.46574	50.48	-2.500	.3723	970.33	-106.778	.46574	50.48	-2.500	.1864	.1864	.1864
.2200	57.21	-72.170	-3.0003	34.12	-9.295	.4191	1568.86	-100.438	.4191	.4191	-100.438	.51767	65.82	-2.209	.4191	1568.86	-100.438	.51767	65.82	-2.209	.1982	.1982	.1982
.2250	305.62	-71.263	-3.3594	66.89	-9.037	.4650	2116.54	-91.207	.4650	.4650	-91.207	.56569	78.82	-1.846	.4650	2116.54	-91.207	.56569	78.82	-1.846	.2084	.2084	.2084
.2300	531.47	-69.167	-3.7109	99.93	-8.614	.5092	2569.96	-79.463	.5092	.5092	-79.463	.60845	88.17	-1.428	.5092	2569.96	-79.463	.60845	88.17	-1.428	.2166	.2166	.2166
.2350	732.56	-66.009	-4.0493	126.89	-8.047	.5509	2920.92	-65.719	.5509	.5509	-65.719	.64482	93.80	-1.226	.5509	2920.92	-65.719	.64482	93.80	-1.226	.2226	.2226	.2226
.2400	927.60	-61.869	-4.3694	152.38	-7.350	.5894	3208.17	-50.400	.5894	.5894	-50.400	.67391	97.39	-.494	.5894	3208.17	-50.400	.67391	97.39	-.494	.2263	.2263	.2263
.2450	1120.55	-56.756	-4.6663	176.98	-6.528	.6242	3442.00	-33.770	.6242	.6242	-33.770	.69500	98.88	-.003	.6242	3442.00	-33.770	.69500	98.88	-.003	.2275	.2275	.2275
.2500	1293.42	-50.718	-4.9354	198.14	-5.589	.6545																	

T	70		PAGE NO.		21		QBDD7		QB7		QBDD8		QB8	
	SEC	IN/SEC2	QBDD5	IN	QBDD6	IN/SEC	QB6	IN/SEC2	QBDD7	IN/SEC	QBDD8	IN/SEC	QB8	IN
.0000	.00	.00	.0000	.0000	.0000	.0000	.0000	.00	.0000	.0000	.00	.0000	.0000	.0000
.0050	-27.05	-.062	-.0001	-18.08	-.039	-.0001	14.22	.031	.0000	.0000	5.31	.012	.0000	.0000
.0100	-60.15	-.279	-.0009	-47.34	-.199	-.0006	37.20	.156	.0005	.0005	13.91	.058	.0002	.0002
.0150	-90.22	-.658	-.0032	-84.39	-.526	-.0023	65.96	.413	.0018	.0018	24.61	.154	.0007	.0007
.0200	-111.37	-1.168	-.0077	-123.93	-1.047	-.0062	95.82	.818	.0048	.0048	35.55	.305	.0018	.0018
.0250	-119.15	-1.752	-.0150	-160.82	-1.761	-.0131	122.25	1.365	.0102	.0102	44.91	.507	.0038	.0038
.0300	-111.58	-2.335	-.0252	-190.23	-2.643	-.0241	141.17	2.028	.0187	.0187	51.10	.749	.0069	.0069
.0350	-89.22	-2.843	-.0382	-208.59	-3.645	-.0397	149.73	2.760	.0306	.0306	53.07	1.011	.0113	.0113
.0400	-53.68	-3.204	-.0534	-213.13	-4.706	-.0606	146.05	3.505	.0463	.0463	50.19	1.271	.0171	.0171
.0450	-9.69	-3.362	-.0699	-203.52	-5.753	-.0868	130.50	4.201	.0656	.0656	42.80	1.506	.0240	.0240
.0500	40.85	-3.279	-.0866	-179.60	-6.716	-.1180	103.91	4.791	.0881	.0881	31.43	1.692	.0320	.0320
.0550	92.89	-2.940	-.1023	-141.56	-7.528	-.1537	67.41	5.226	.1133	.1133	16.76	1.815	.0408	.0408
.0600	157.09	-2.305	-.1155	-37.47	-7.976	-.1927	-20.41	5.342	.1399	.1399	-16.97	1.814	.0500	.0500
.0650	206.90	-1.385	-.1248	66.57	-7.901	-.2326	-103.64	5.028	.1660	.1660	-47.82	1.650	.0587	.0587
.0700	239.67	-.258	-.1290	162.74	-7.323	-.2708	-174.56	4.326	.1895	.1895	-72.56	1.346	.0662	.0662
.0750	293.73	.985	-.1272	244.00	-6.298	-.3051	-226.80	3.314	.2087	.2087	-88.74	.939	.0720	.0720
.0800	248.81	2.251	-.1191	304.62	-4.917	-.3332	-256.01	2.096	.2233	.2233	-94.89	.475	.0755	.0755
.0850	225.62	3.445	-.1048	340.52	-3.293	-.3538	-260.05	.796	.2295	.2295	-90.65	.007	.0767	.0767
.0900	186.40	4.483	-.0849	349.69	-1.556	-.3660	-239.31	-4.63	.2303	.2303	-76.83	-.415	.0757	.0757
.0950	134.98	5.293	-.0604	325.16	.150	-.3694	-190.69	-1.553	.2252	.2252	-52.92	-.745	.0727	.0727
.1000	74.95	5.821	-.0325	271.53	1.651	-.3648	-121.18	-2.338	.2153	.2153	-22.44	-.935	.0685	.0685
.1050	11.29	6.038	-.0027	198.96	2.834	-.3534	-42.37	-2.749	.2024	.2024	9.45	-.967	.0636	.0636
.1100	-51.57	5.937	.0274	113.40	3.619	-.3371	38.04	-2.759	.1895	.1895	39.28	-.844	.0591	.0591
.1150	-109.29	5.532	.0562	21.64	3.958	-.3180	112.39	-2.379	.1755	.1755	63.94	-.583	.0554	.0554
.1200	-158.05	4.860	.0823	-69.25	3.837	-.2983	173.85	-1.657	.1653	.1653	80.95	-.217	.0534	.0534
.1250	-194.68	3.972	.1044	-152.44	3.278	-.2804	217.00	-.671	.1593	.1593	86.77	.654	.0534	.0534
.1300	-217.00	2.937	.1217	-221.91	2.336	-.2662	238.34	.477	.1588	.1588	75.58	1.063	.0555	.0555
.1350	-223.87	1.828	.1337	-272.80	1.090	-.2575	236.52	1.674	.1642	.1642	51.29	1.391	.0660	.0660
.1400	-382.48	.542	.1399	-449.46	-.517	-.2557	63.28	2.642	.1753	.1753	23.61	1.573	.0735	.0735
.1450	-685.15	-2.179	.1364	-762.85	-3.583	-.2653	-250.12	2.123	.1879	.1879	12.08	1.655	.0816	.0816
.1500	-842.40	-6.061	.1162	-974.68	-7.971	-.2938	-413.82	.398	.1945	.1945	18.90	1.724	.0900	.0900
.1550	-888.59	-10.420	.0750	-1116.94	-13.215	-.3464	-447.33	-1.799	.1911	.1911	40.47	1.869	.0990	.0990
.1600	-1088.01	-15.167	.0115	-1433.26	-19.399	-.4273	-572.53	-4.197	.1764	.1764	80.41	2.168	.1090	.1090
.1650	-1283.86	-21.195	-.0790	-1778.25	-27.523	-.5439	-645.97	-7.335	.1477	.1477	-216.95	2.033	.1203	.1203
.1700	-1042.32	-27.209	-.2006	-665.90	-34.458	-.7017	-1160.71	-11.521	.1020	.1020	-261.56	.774	.1274	.1274
.1750	-788.13	-31.816	-.3487	-243.69	-36.595	-.8802	-1064.74	-17.258	.0298	.0298	-205.36	-.421	.1281	.1281
.1800	-482.89	-35.011	-.5164	-23.97	-37.217	-.10652	-696.69	-21.736	-.0685	-.0685	-97.64	-1.184	.1239	.1239
.1850	-149.34	-36.614	-.6961	101.58	-37.035	-.12510	-195.53	-23.992	-.1838	-.1838	-336.33	-2.189	.1162	.1162
.1900	446.63	-35.955	-.8789	1529.21	-33.286	-.14306	-325.24	-25.161	-.3081	-.3081	-290.42	-3.830	.1010	.1010
.1950	945.26	-32.480	-1.0510	2033.76	-24.169	-.15753	117.30	-25.848	-.4345	-.4345	-169.39	-4.993	.0787	.0787
.2000	1397.28	-26.581	-1.1996	2267.99	-13.326	-.16695	671.30	-23.863	-.5599	-.5599	-32.13	-5.498	.0522	.0522
.2050	1693.32	-18.794	-1.3137	2273.91	-9.106	-.17076	1112.37	-19.350	-.7504	-.7504	98.29	-5.327	.0249	.0249
.2100	1842.03	-9.915	-1.3858	2105.33	9.106	-.16892	1403.96	-13.008	-.7504	-.7504	224.41	-4.521	.0000	.0000
.2150	1884.72	-.568	-1.4121	1777.94	18.877	-.16185	1601.05	-5.478	-.8039	-.8039	323.73	-3.139	-.0194	-.0194
.2200	1833.56	8.766	-1.3915	1360.19	26.758	-.15036	1676.09	2.765	-.8039	-.8039	385.03	-1.350	-.0307	-.0307
.2250	1652.86	17.530	-1.3253	849.46	32.310	-.13548	1588.31	10.988	-.7694	-.7694	400.61	.633	-.0325	-.0325
.2300	1339.63	25.052	-1.2182	275.38	35.134	-.11850	1329.93	18.339	-.6955	-.6955	369.69	2.576	-.0245	-.0245
.2350	919.27	30.721	-1.0779	-314.43	35.018	-.10084	929.80	24.024	-.5888	-.5888	297.86	4.257	-.0072	-.0072
.2400	449.75	34.137	-.9148	-849.49	32.070	-.8396	454.49	27.481	-.4590	-.4590	198.99	5.506	.0174	.0174
.2450	-20.97	35.191	-.7405	-1295.24	26.657	-.6918	-27.92	28.528	-.3180	-.3180	81.98	6.213	.0469	.0469
.2500	-481.82	33.914	-.5668	-1633.56	19.279	-.5763	-494.91	27.195	-.1777	-.1777	-41.82	6.311	.0785	.0785
.2550	-916.65	30.382	-.4051	-1851.84	10.499	-.5014	-919.68	23.612	-.0498	-.0498	-156.92	5.805	.1090	.1090
.2600	-1278.87	24.836	-.2663	-1926.34	.979	-.4725	-1244.78	18.129	.0552	.0552	-249.25	4.776	.1357	.1357
.2650	-1526.88	17.750	-.1593	-1843.34	-8.524	-.4915	-1422.59	11.373	.1294	.1294	-310.16	3.362	.1561	.1561
.2700	-1649.66	9.740	-.0903	-1615.02	-17.236	-.5564	-1444.60	4.124	.1682	.1682				

RUN NO. 70			PAGE NO. 22			D			VB2			SD			S			VBD3			VB3			VD			V					
SEC	FT/SEC2	VB1	DD	FT	FT/SEC2	VB2	FT/SEC	VB3	FT/SEC	VB4	FT/SEC	VB5	FT/SEC	VB6	FT/SEC	VB7	FT/SEC	VB8	FT/SEC	VB9	FT/SEC	VB10	FT/SEC	VB11	FT/SEC	VB12	FT/SEC	VB13	FT/SEC	VB14	FT/SEC	
.2750	-11.712	156.965	160.350	45.806	-16.7245	.0334	-.2897	33.6742	-.0067	-265.879	33.6742	7.7295	-.0082	-270.230	32.3160	7.2082	-.0097	-274.194	30.9369	6.6948	-.0113	-277.078	29.5409	6.1928	-.0130	-278.926	28.1332	5.7072	-.0147	-280.680	26.7168	5.2404
.2800	-13.496	156.900	160.030	46.607	-16.5867	-.0516	-.3009	32.3160	-.0082	-270.230	32.3160	7.2082	-.0097	-274.194	30.9369	6.6948	-.0113	-277.078	29.5409	6.1928	-.0130	-278.926	28.1332	5.7072	-.0147	-280.680	26.7168	5.2404	-.0164	-289.895	25.2701	4.7697
.2850	-15.419	156.825	159.706	47.407	-16.4386	-.1358	-.3114	30.9369	-.0097	-274.194	30.9369	6.6948	-.0113	-277.078	29.5409	6.1928	-.0130	-278.926	28.1332	5.7072	-.0147	-280.680	26.7168	5.2404	-.0164	-289.895	25.2701	4.7697	-.0183	-313.076	23.7506	4.2453
.2900	-17.604	156.739	159.378	48.204	-16.5837	-.2198	-.3222	29.5409	-.0113	-277.078	29.5409	6.1928	-.0130	-278.926	28.1332	5.7072	-.0147	-280.680	26.7168	5.2404	-.0164	-289.895	25.2701	4.7697	-.0183	-313.076	23.7506	4.2453	-.0202	-320.646	22.1681	3.6672
.2950	-20.052	156.643	159.047	49.000	-16.7514	-.3048	-.3344	28.1332	-.0130	-278.926	28.1332	5.7072	-.0147	-280.680	26.7168	5.2404	-.0164	-289.895	25.2701	4.7697	-.0183	-313.076	23.7506	4.2453	-.0202	-320.646	22.1681	3.6672	-.0221	-315.573	20.5923	3.0992
.3000	-22.591	156.533	158.711	49.795	-16.6453	-.3902	-.3477	26.7168	-.0147	-280.680	26.7168	5.2404	-.0164	-289.895	25.2701	4.7697	-.0183	-313.076	23.7506	4.2453	-.0202	-320.646	22.1681	3.6672	-.0221	-315.573	20.5923	3.0992	-.0241	-294.946	19.0439	2.5616
.3050	-26.483	156.411	158.368	50.587	-16.5884	-.4750	-.3607	25.2701	-.0164	-289.895	25.2701	4.7697	-.0183	-313.076	23.7506	4.2453	-.0202	-320.646	22.1681	3.6672	-.0221	-315.573	20.5923	3.0992	-.0241	-294.946	19.0439	2.5616	-.0262	-313.081	17.4930	2.0170
.3100	-32.327	156.268	158.006	51.378	-16.5089	-.5593	-.3734	23.7506	-.0183	-313.076	23.7506	4.2453	-.0202	-320.646	22.1681	3.6672	-.0221	-315.573	20.5923	3.0992	-.0241	-294.946	19.0439	2.5616	-.0262	-313.081	17.4930	2.0170	-.0284	-321.414	15.8997	1.4154
.3150	-41.102	156.086	157.610	52.167	-15.8173	-.6418	-.3846	22.1681	-.0202	-320.646	22.1681	3.6672	-.0221	-315.573	20.5923	3.0992	-.0241	-294.946	19.0439	2.5616	-.0262	-313.081	17.4930	2.0170	-.0284	-321.414	15.8997	1.4154	-.0306	-310.685	14.3411	.8256
.3200	-47.135	155.868	157.193	52.954	-15.2914	-.7208	-.3942	20.5923	-.0221	-315.573	20.5923	3.0992	-.0241	-294.946	19.0439	2.5616	-.0262	-313.081	17.4930	2.0170	-.0284	-321.414	15.8997	1.4154	-.0306	-310.685	14.3411	.8256	-.0329	-297.187	12.8298	.2640
.3250	-45.976	155.624	156.766	53.739	-16.3003	-.7985	-.4045	19.0439	-.0241	-294.946	19.0439	2.5616	-.0262	-313.081	17.4930	2.0170	-.0284	-321.414	15.8997	1.4154	-.0306	-310.685	14.3411	.8256	-.0329	-297.187	12.8298	.2640	-.0353	-291.898	11.3691	-.2664
.3300	-44.780	155.410	156.380	54.522	-17.1348	-.8830	-.4237	17.4930	-.0262	-313.081	17.4930	2.0170	-.0284	-321.414	15.8997	1.4154	-.0306	-310.685	14.3411	.8256	-.0329	-297.187	12.8298	.2640	-.0353	-291.898	11.3691	-.2664	-.0403	-272.705	8.5003	-1.3508
.3350	-40.606	155.199	156.007	55.303	-15.1768	-.9659	-.4430	15.8997	-.0284	-321.414	15.8997	1.4154	-.0306	-310.685	14.3411	.8256	-.0329	-297.187	12.8298	.2640	-.0353	-291.898	11.3691	-.2664	-.0403	-272.705	8.5003	-1.3508	-.0428	-259.354	7.1812	-1.8161
.3400	-50.092	154.748	155.282	56.082	-15.1575	-.1.0432	-.4590	14.3411	-.0306	-310.685	14.3411	.8256	-.0329	-297.187	12.8298	.2640	-.0353	-291.898	11.3691	-.2664	-.0403	-272.705	8.5003	-1.3508	-.0428	-259.354	7.1812	-1.8161	-.0454	-254.255	5.9003	-2.2666
.3450	-51.145	154.594	154.915	56.860	-13.6885	-1.1168	-.4736	12.8298	-.0329	-297.187	12.8298	.2640	-.0353	-291.898	11.3691	-.2664	-.0403	-272.705	8.5003	-1.3508	-.0428	-259.354	7.1812	-1.8161	-.0454	-254.255	5.9003	-2.2666	-.0481	-243.397	4.6555	-2.7094
.3500	-54.714	154.229	154.549	57.635	-13.0117	-1.1843	-.4843	11.3691	-.0353	-291.898	11.3691	-.2664	-.0403	-272.705	8.5003	-1.3508	-.0428	-259.354	7.1812	-1.8161	-.0454	-254.255	5.9003	-2.2666	-.0481	-243.397	4.6555	-2.7094	-.0508	-224.546	3.4944	-3.0969
.3550	-58.688	153.946	154.180	58.409	-12.6501	-1.2499	-.4948	9.9056	-.0378	-291.898	9.9056	-.2664	-.0403	-272.705	8.5003	-1.3508	-.0428	-259.354	7.1812	-1.8161	-.0454	-254.255	5.9003	-2.2666	-.0481	-243.397	4.6555	-2.7094	-.0535	-216.953	2.3995	-3.4429
.3600	-62.281	153.643	153.805	59.951	-11.6856	-1.3737	-.5050	8.5003	-.0403	-272.705	8.5003	-1.3508	-.0428	-259.354	7.1812	-1.8161	-.0454	-254.255	5.9003	-2.2666	-.0481	-243.397	4.6555	-2.7094	-.0535	-216.953	2.3995	-3.4429	-.0563	-209.674	1.3306	-3.7904
.3650	-66.752	153.001	153.054	60.719	-11.3779	-1.4328	-.5253	7.1812	-.0428	-259.354	7.1812	-1.8161	-.0454	-254.255	5.9003	-2.2666	-.0481	-243.397	4.6555	-2.7094	-.0535	-216.953	2.3995	-3.4429	-.0563	-209.674	1.3306	-3.7904	-.0591	-191.892	.3310	-4.0997
.3700	-63.752	153.327	153.429	61.485	-10.9039	-1.4901	-.5354	5.9003	-.0454	-254.255	5.9003	-2.2666	-.0481	-243.397	4.6555	-2.7094	-.0535	-216.953	2.3995	-3.4429	-.0563	-209.674	1.3306	-3.7904	-.0591	-191.892	.3310	-4.0997	-.0620	-179.103	-.5863	-4.3544
.3750	-69.852	152.659	152.674	62.249	-10.3102	-1.5445	-.5442	4.6555	-.0481	-243.397	4.6555	-2.7094	-.0535	-216.953	2.3995	-3.4429	-.0563	-209.674	1.3306	-3.7904	-.0591	-191.892	.3310	-4.0997	-.0620	-179.103	-.5863	-4.3544	-.0648	-173.915	-1.4678	-4.6017
.3800	-71.399	152.305	152.293	63.012	-9.9484	-1.5965	-.5520	3.4944	-.0508	-224.546	3.4944	-3.0969	-.0535	-216.953	2.3995	-3.4429	-.0563	-209.674	1.3306	-3.7904	-.0591	-191.892	.3310	-4.0997	-.0648	-173.915	-1.4678	-4.6017	-.0677	-161.128	-2.2996	-4.8314
.3900	-73.105	151.944	151.910	63.772	-9.6605	-1.6470	-.5595	2.3995	-.0535	-216.953	2.3995	-3.4429	-.0563	-209.674	1.3306	-3.7904	-.0591	-191.892	.3310	-4.0997	-.0620	-179.103	-.5863	-4.3544	-.0648	-173.915	-1.4678	-4.6017	-.0707	-147.102	-3.0579	-5.0180
.3950	-75.630	151.572	151.526	64.531	-9.2533	-1.6953	-.5658	1.3306	-.0563	-209.674	1.3306	-3.7904	-.0591	-191.892	.3310	-4.0997	-.0620	-179.103	-.5863	-4.3544	-.0648	-173.915	-1.4678	-4.6017	-.0707	-147.102	-3.0579	-5.0180	-.0736	-142.981	-3.7792	-5.1965
.4000	-77.172	151.190	151.137	65.287	-9.0426	-1.7420	-.5716	.8256	-.0591	-191.892	.3310	-4.0997	-.0620	-179.103	-.5863	-4.3544	-.0648	-173.915	-1.4678	-4.6017	-.0707	-147.102	-3.0579	-5.0180	-.0736	-142.981	-3.7792	-5.1965	-.0765	-133.755	-4.4718	-5.3779
.4050	-78.253	150.801	150.747	66.042	-8.7271	-1.7874	-.5769	.2640	-.0620	-179.103	-.5863	-4.3544	-.0648	-173.915	-1.4678	-4.6017	-.0707	-147.102	-3.0579	-5.0180	-.0736	-142.981	-3.7792	-5.1965	-.0765	-133.755	-4.4718	-5.3779	-.0795	-120.845	-5.1007	-5.5262
.4100	-80.078	150.406	150.356	66.795	-8.4893	-1.8313	-.5815	.2640	-.0648	-173.915	-1.4678	-4.6017	-.0707	-147.102	-3.0579	-5.0180	-.0736	-142.981	-3.7792	-5.1965	-.0765	-133.755	-4.4718	-5.3779	-.0795	-120.845	-5.1007	-5.5262	-.0824	-116.012	-5.6889	-5.6621
.4150	-81.209	150.003	149.961	67.546	-8.1728	-1.8738	-.5853	.2640	-.0677	-161.128	-2.2996	-4.8314	-.0707	-147.102	-3.0579	-5.0180	-.0736	-142.981	-3.7792	-5.1965	-.0765	-133.755	-4.4718	-5.3779	-.0795	-120.845	-5.1007	-5.5262	-.0853	-108.096	-6.2497	-5.8002
.4200	-81.790	149.596	149.564	68.294	-7.5573	-1.9137	-.5871	.2640	-.0707	-147.102	-3.0579	-5.0180	-.0736	-142.981	-3.7792	-5.1965	-.0765	-133.755	-4.4718	-5.3779	-.0795	-120.845	-5.1007	-5.5262	-.0853	-108.096	-6.2497	-5.8002	-.0882	-96.350	-6.7555	-5.9124
.4250	-82.946	149.184	149.166	69.041	-7.1233	-1.9509	-.5870	.2640	-.0736	-142.981	-3.7792	-5.1965	-.0765	-133.755	-4.4718	-5.3779	-.0795	-120.845	-5.1007	-5.5262	-.0853	-108.096	-6.2497	-5.8002	-.0882	-96.350	-6.7555	-5.9124	-.0911	-90.908	-7.2197	-6.0090
.4300	-83.796	148.767	148.764	69.786	-6.6915	-1.9866	-.5859	.2640	-.0765	-133.755	-4.4718	-5.3779	-.0795	-120.845	-5.1007	-5.5262	-.0853	-108.096	-6.2497	-5.8002	-.0882	-96.350	-6.7555	-5.9124	-.0911	-90.908	-7.2197	-6.0090	-.0941	-84.140	-7.6590	-6.1067
.4350	-84.352	148.347	148.360	70.529	-6.6771	-2.0212	-.5846	.2640	-.0795	-120.845	-5.1007	-5.5262	-.0853	-108.096	-6.2497	-5.8002	-.0882	-96.350	-6.7555	-5.9124	-.0911	-90.908	-7.2197	-6.0090	-.0941	-84.140	-7.6590	-6.1067	-.0970	-73.197	-8.0490	-6.1803

RUN NO.		PAGE NO.		23		70	
T	OMEGBD1	PHID	PHI	OMEGBD2	OMEGB2	THETD	THET
SEC	RAD/SEC2	RAD/SEC	DEG	RAD/SEC2	RAD/SEC	RAD/SEC	DEG
.2750	-1.0579	-1.1674	1.323	-8.1931	-1.9912	-9.9919	9.346
.2800	-1.0242	-1.1692	1.275	-8.1838	-1.0288	-1.0295	9.056
.2850	-1.1865	-1.1779	1.226	-8.1246	-1.0663	-1.0670	8.756
.2900	-1.3374	-1.1841	1.175	-8.0706	-1.1036	-1.1043	8.444
.2950	-1.3260	-1.1908	1.122	-7.9775	-1.1405	-1.1412	8.123
.3000	-1.1299	-1.1969	1.068	-7.8659	-1.1769	-1.1776	7.790
.3050	-1.8367	-1.2017	1.012	-4.3669	-1.2087	-1.2093	7.448
.3100	-6.238	-2.052	.954	-1.8753	-1.2269	-1.2275	7.098
.3150	-6.656	-2.083	.896	-1.2600	-1.2327	-1.2333	6.746
.3200	-8.206	-2.120	.837	-7.7541	-1.2380	-1.2386	6.392
.3250	-7.115	-2.162	.777	-3.7089	-1.2463	-1.2469	6.036
.3300	-4.463	-2.191	.715	1.8013	-1.2431	-1.2437	5.679
.3350	-4.475	-2.213	.653	5.8824	-1.2224	-1.2229	5.325
.3400	-1.134	-2.227	.591	5.1330	-1.1987	-1.1991	4.978
.3450	-1.077	-2.231	.528	4.3010	-1.1771	-1.1776	4.638
.3500	-0.297	-2.234	.465	5.2349	-1.1557	-1.1561	4.304
.3550	.0386	-2.233	.402	7.2834	-1.1237	-1.1241	3.977
.3600	.0680	-2.230	.339	5.6807	-1.0924	-1.0927	3.659
.3650	.2181	-2.223	.276	5.2084	-1.0676	-1.0678	3.350
.3700	.4840	-2.205	.213	6.7394	-1.0385	-1.0387	3.048
.3750	.7616	-2.173	.151	7.0839	-1.0038	-1.0040	2.756
.3800	.9146	-2.129	.090	5.6112	-9.738	-9.738	2.472
.3850	.9513	-2.082	.030	6.4498	-9.456	-9.456	2.197
.3900	.9275	-2.034	-.028	7.6701	-9.100	-9.099	1.931
.3950	.9256	-1.988	-.085	6.6967	-8.749	-8.748	1.676
.4000	1.0635	-1.938	-.141	6.6138	-8.436	-8.435	1.430
.4100	1.3705	-1.814	-.248	7.7661	-7.688	-7.685	.968
.4150	1.3330	-1.745	-.298	6.9819	-7.342	-7.338	.753
.4200	1.0403	-1.685	-.347	7.8527	-6.980	-6.976	.547
.4250	.7985	-1.639	-.395	7.8041	-6.587	-6.582	.353
.4300	.6569	-1.603	-.441	6.8874	-6.234	-6.229	.170
.4350	.5945	-1.571	-.486	7.5011	-5.882	-5.877	-.004
.4400	.5738	-1.542	-.531	7.4711	-5.506	-5.501	-.167
.4450	.5610	-1.513	-.575	6.4681	-5.167	-5.161	-.319
.4500	.4947	-1.485	-.618	6.6018	-4.849	-4.842	-.463
.4550	.3633	-1.463	-.660	6.5297	-4.518	-4.510	-.596
.4600	.2321	-1.448	-.702	5.5536	-4.222	-4.214	-.721
.4650	.1326	-1.438	-.744	5.5281	-3.952	-3.944	-.838
.4700	.1169	-1.432	-.785	5.4508	-3.675	-3.666	-.947
.4750	.1502	-1.425	-.826	4.6109	-3.428	-3.419	-1.049
.4800	.1510	-1.417	-.867	4.5176	-3.206	-3.197	-1.143
.4850	.1042	-1.410	-.908	4.4362	-2.977	-2.968	-1.232
.4900	.0351	-1.406	-.949	3.8879	-2.772	-2.763	-1.314
.4950	-.0238	-1.405	-.990	3.9650	-2.578	-2.569	-1.390
.5000	-.0452	-1.406	-1.030	3.8207	-2.386	-2.377	-1.461
.5050	-.0085	-1.407	-1.071	3.4751	-2.206	-2.197	-1.526
.5100	.0255	-1.406	-1.112	3.2678	-2.041	-2.032	-1.587
.5150	.3207	-1.400	-1.152	3.2566	-1.880	-1.871	-1.643
.5200	.6747	-1.373	-1.192	3.0048	-1.725	-1.716	-1.694
.5250	.7575	-1.336	-1.231	2.8077	-1.581	-1.573	-1.741
.5300	.5866	-1.301	-1.270	2.5829	-1.447	-1.439	-1.784
.5350	-.6500	-1.285	-1.307	1.8334	-1.332	-1.324	-1.824
.5400	-.7371	-1.324	-1.345	1.4549	-1.253	-1.246	-1.861
.5450	-.3548	-1.351	-1.383	1.3910	-1.184	-1.177	-1.895

[illegible]

T	FS1	FGW11	FGW12	FGW13	FAX11	FAX12	FAX13	SID1	SID	S1	FFBU1	FFBU1
SEC	LB	LB	LB	LB	LB	LB	LB	IN/SEC2	IN/SEC	IN	LB	LB
.2750	4509.	0.	0.	0.	1269.	-19.	-1484.	5532.6	-3.232	-0.330	-70.7	46.1
.2800	4544.	0.	0.	0.	1263.	-20.	-1482.	5462.8	-3.169	-0.337	-37.5	-41.2
.2850	4579.	0.	0.	0.	1291.	-23.	-1493.	5209.2	-3.168	-0.338	-28.4	-32.1
.2900	4589.	0.	0.	0.	1305.	-25.	-1500.	5246.3	-3.222	-0.338	-28.0	-31.7
.2950	4622.	0.	0.	0.	1299.	-25.	-1488.	5280.4	-3.216	-0.340	-21.8	-25.5
.3000	4609.	0.	0.	0.	1310.	-22.	-1493.	5245.5	-3.205	-0.339	-22.8	-26.5
.3050	-8952.	-4713.	-47.	-22070.	5822.	-448.	-17946.	8074.7	16.196	-0.056	-499.5	-883.3
.3100	-42273.	-11624.	-131.	-43161.	7256.	-853.	-36108.	15968.1	99.319	.3000	-1096.8	-1978.9
.3150	-80363.	-16127.	-237.	-44280.	-3950.	-934.	-40444.	1988.4	147.739	.9337	-1381.6	-2608.7
.3200	-118060.	-16136.	-417.	-32989.	-35898.	-910.	-41527.	10286.8	139.523	1.6779	-6285.0	-1519.9
.3250	-109945.	-14574.	-1803.	-34040.	-31131.	-2265.	-44059.	17527.5	107.082	2.2802	-5972.3	-12446.7
.3300	-91570.	-8968.	-2647.	-51910.	-2739.	-3290.	-53602.	3723.4	92.399	2.7842	-1171.8	-2568.8
.3350	-83913.	-686.	-645.	-68613.	19445.	-1425.	-58215.	983.3	92.704	3.2108	-168.0	-366.0
.3400	-117074.	-616.	-560.	-61619.	1107.	-1205.	-61962.	2531.0	124.687	3.7580	-2815.6	-6648.2
.3450	-140267.	-520.	-454.	-51961.	-13431.	-930.	-63783.	-8247.0	89.562	4.3134	-5653.9	-1400.8
.3500	-112504.	-657.	-554.	-65676.	2938.	-1083.	-63125.	5327.	83.877	4.7208	-3733.1	-9636.8
.3550	-108443.	-732.	-592.	-73192.	15797.	-1100.	-65110.	637.9	94.461	5.1757	-1784.8	-4815.1
.3600	-128613.	-618.	-478.	-61830.	-4758.	-840.	-65396.	-1080.0	100.819	5.6623	-4074.1	-11567.8
.3650	-134344.	-554.	-407.	-55358.	-9183.	-669.	-64952.	-4596.1	81.938	6.1302	-4989.6	-14875.9
.3700	-108594.	-678.	-471.	-67810.	7692.	-714.	-61436.	2691.5	72.819	6.4998	-3066.3	-9545.9
.3750	-115211.	-664.	-430.	-66370.	5198.	-591.	-62398.	-244.0	82.722	6.8915	-2937.2	-9625.0
.3800	-132348.	-539.	-321.	-53925.	-9145.	-391.	-63205.	-3894.1	72.947	7.2890	-4277.1	-14896.6
.3850	-118437.	-599.	-324.	-59904.	-736.	-342.	-60840.	-274.5	58.603	7.6133	-3646.8	-13367.2
.3900	-109032.	-668.	-326.	-66770.	6279.	-279.	-59434.	1609.8	61.590	7.9083	-2793.2	-10625.4
.3950	-126951.	-565.	-245.	-56517.	-4953.	-147.	-61525.	-2645.8	63.096	8.2278	-3579.5	-14126.4
.4000	-124585.	-551.	-208.	-55104.	-5021.	-57.	-60218.	-1742.4	49.069	8.5089	-3741.9	-15257.8
.4050	-110393.	-639.	-204.	-63872.	3902.	32.	-57729.	903.9	45.714	8.7396	-2938.2	-12361.7
.4100	-120838.	-581.	-149.	-58146.	-2366.	124.	-54711.	-3254.7	49.788	8.9792	-3149.4	-13813.6
.4150	-126982.	-527.	-100.	-52729.	-5808.	194.	-59227.	-2937.5	37.380	9.1990	-3486.2	-15870.9
.4200	-111308.	-78.	-78.	-6024.	979.	301.	-55682.	960.8	32.322	9.3672	-922.1	-1715.6
.4250	-116616.	-575.	-43.	-57547.	-931.	364.	-56303.	-1144.7	33.467	9.5343	-2.60.5	-13819.3
.4300	-122682.	-511.	-12.	-51069.	-5924.	390.	-56570.	-1710.4	27.546	9.6892	-3177.7	-15754.5
.4350	-110110.	-555.	1.	-55456.	-661.	494.	-53169.	148.2	21.561	9.8096	-2792.1	-14144.2
.4400	-108587.	-544.	41.	-54425.	-933.	554.	-52042.	-369.8	22.872	9.9201	-2598.3	-13417.5
.4450	-113681.	-472.	60.	-47227.	-5257.	544.	-51891.	-1590.7	18.712	10.0276	-2796.5	-14761.7
.4500	-101328.	-490.	88.	-49002.	-1662.	626.	-47858.	185.2	13.548	10.1072	-491.2	-13400.3
.4550	-96141.	-481.	110.	-48105.	-846.	672.	-45537.	5.9	13.682	10.1757	-2226.4	-12176.7
.4600	-98808.	-412.	114.	-41241.	-4461.	626.	-44785.	-931.3	11.628	10.2424	-2338.2	-12972.2
.4650	-88141.	-414.	133.	-41393.	-2036.	674.	-41057.	38.5	7.334	10.2899	-2109.3	-11840.1
.4700	-81674.	-407.	148.	-40682.	-900.	709.	-38454.	119.8	7.081	10.3250	-1858.5	-10529.4
.4750	-82761.	-348.	111.	-34838.	-3736.	649.	-37488.	-747.6	5.955	10.3596	-1920.9	-10952.1
.4800	-74838.	-343.	154.	-74838.	-1994.	678.	-34495.	-565.3	1.367	10.3790	-1757.3	-10072.8
.4850	-69869.	-344.	169.	-34368.	-1029.	718.	-32736.	459.6	-2.867	10.3706	-1238.2	-9291.4
.4900	-70510.	-309.	164.	-30868.	-3090.	679.	-32206.	413.9	-0.007	10.3628	-848.4	-8901.6
.4950	-67032.	-300.	171.	-29967.	-1860.	692.	-30604.	-1160.9	-4.324	10.3550	-462.7	-8515.9
.5000	-61160.	-301.	183.	-30135.	-1409.	728.	-28631.	513.1	-4.437	10.3304	770.4	-7282.8
.5050	-61698.	-274.	176.	-27384.	-2229.	693.	-28164.	-291.2	-3.130	10.3134	1442.7	-6435.8
.5100	-57952.	-260.	177.	-25996.	-2033.	688.	-26485.	-425.0	-4.988	10.2935	1384.9	-5438.0
.5150	-53017.	-256.	185.	-25647.	-1145.	714.	-24659.	16.4	-6.085	10.2650	1255.4	-4012.3
.5200	-51422.	-234.	181.	-23354.	-1757.	688.	-23588.	18.5	-5.293	10.2367	1222.4	-2596.6
.5250	-48205.	-216.	180.	-21572.	-1707.	667.	-21986.	-367.8	-6.393	10.2083	1166.8	-1179.9
.5300	-43081.	-207.	185.	-20657.	-999.	663.	-19980.	-44.4	-7.317	10.1734	1040.1	566.7
.5350	-40104.	-186.	174.	-18578.	-1253.	590.	-18482.	-5.4	-0.079	10.1374	969.5	2365.3
.5400	-36598.	-164.	155.	-16351.	-1305.	536.	-16736.	-295.1	7.749	10.1011	898.3	4183.8
.5450	-31689.	-149.	144.	-14928.	-693.	506.	-14659.	-528.3	-9.899	10.0567	772.9	4108.4

RUN NO.		PAGE NO.		26															
SEC	PH2	PH2	PHS2	OMW2D	OMW2C	OMW2	IN/SEC2	QG2DD1	QG2D1	QG21	IN/SEC2	QG2D2	IN/SEC	QG22	VW2				
.2750	3443.4	3883.1	-7326.5	.00	-205.153	18049.39	-13.377	-8581	-2791.65	9.179	5219	40							
.2800	2984.9	4132.4	-7167.4	.00	-205.153	11435.91	65.795	-7131	-2978.21	-7.439	5266	456							
.2850	2423.2	4441.0	-6864.2	.00	-205.153	-3283.63	87.227	-2994	895.41	-13.029	4670	435							
.2900	1943.1	4665.1	-6608.2	.00	-205.153	-14227.72	39.608	0408	2971.92	-1.262	4268	435							
.2950	1641.6	4864.7	-6506.3	.00	-205.153	-13359.21	-34.673	0513	471.43	9.081	4517	527							
.3000	1457.3	5047.2	-6504.5	.00	-205.153	-2374.85	-76.572	-2501	-2800.12	2.593	4878	699							
.3050	1202.8	5264.7	-6467.5	.00	-205.153	9418.21	-57.002	-6089	-2202.45	-11.615	4639	883							
.3100	802.7	5471.6	-6274.3	.00	-205.153	6734.17	56.031	-7496	1260.53	-14.010	3924	1022							
.3150	360.4	5629.3	-5989.7	.00	-205.153	6734.17	56.031	-5860	2889.19	-1.757	3494	1119							
.3200	7.9	5724.7	-5732.5	.00	-205.153	-4518.77	60.763	-2708	688.77	8.682	3714	1205							
.3250	-219.5	5724.3	-5504.8	.00	-205.153	-10824.94	18.371	-0599	-2456.01	4.451	4110	1287							
.3300	-390.3	5657.7	-5267.4	.00	-205.153	-8194.35	32.398	-1005	-2414.93	-9.512	3982	1390							
.3350	-434.8	5581.3	-5146.4	.00	-205.153	249.86	-53.530	-3332	611.74	-14.073	3328	1542							
.3400	-514.7	5493.7	-4979.0	.00	-205.153	7911.23	-31.271	-5614	2275.85	-5.336	2806	1731							
.3450	-658.8	5387.8	-4729.0	.00	-205.153	9000.11	14.297	-6060	794.38	3.635	2795	1922							
.3500	-864.3	5256.1	-4391.8	.00	-205.153	3196.34	46.890	-4408	-1453.62	1.780	2978	2087							
.3550	-1097.4	5098.5	-4001.0	.00	-205.153	-4497.92	43.009	-1998	-1569.85	-6.666	2858	2232							
.3600	-1338.8	4971.2	-3632.4	.00	-205.153	-8020.63	8.987	-0623	157.65	-10.196	2399	2401							
.3650	-1534.2	4825.4	-3291.2	.00	-205.153	-4928.80	-25.895	-1111	1121.61	-6.038	1972	2630							
.3700	-1691.3	4663.2	-2971.9	.00	-205.153	1799.17	-34.143	-2754	279.06	-1.747	1795	2911							
.3750	-1838.3	4483.1	-2624.8	.00	-205.153	6620.13	-11.283	-3992	-840.74	-3.299	1693	3194							
.3800	-2056.7	4281.7	-2225.0	.00	-205.153	5930.40	22.504	-3696	-569.96	-7.287	1422	3431							
.3850	-2262.0	4056.2	-1794.3	.00	-205.153	741.19	40.219	-2018	575.78	-7.070	1038	3621							
.3900	-2427.5	3813.4	-1385.8	.00	-205.153	-4524.06	29.714	-0158	856.24	-2.688	0788	3803							
.3950	-2577.5	3633.8	-1056.3	.00	-205.153	-5854.83	1.545	-0651	-100.25	-1.250	0734	4011							
.4000	-2691.7	3436.7	-745.0	.00	-205.153	-2528.48	-20.932	-0096	-976.21	-3.221	0666	4240							
.4050	-2756.3	3222.7	-466.4	.00	-205.153	2351.48	-21.234	-1061	-466.12	-7.222	0394	4462							
.4100	-2796.4	2990.9	-194.5	.00	-205.153	4928.54	-1.511	-1684	726.65	-6.363	0028	4646							
.4150	-2818.9	2818.9	.0	.00	-205.153	3276.47	20.765	-1168	1223.09	-1.015	-0165	4777							
.4200	-2633.7	2633.7	.0	.00	-205.153	-1171.16	26.218	-0100	603.71	4.223	-0072	4858							
.4250	-2424.4	2424.4	.0	.00	-205.153	-4278.70	11.382	-1106	-767.56	3.704	0156	4895							
.4300	-2246.6	2246.6	.0	.00	-205.153	-3860.70	-10.510	-1119	-1056.56	-1.548	0216	4894							
.4350	-2071.2	2071.2	.0	.00	-205.153	591.30	-22.340	-0228	12.53	-4.486	0042	4859							
.4400	-1920.8	1920.8	.0	.00	-205.153	2812.02	-16.205	-0807	947.95	-1.674	-0132	4785							
.4450	-1765.8	1765.8	.0	.00	-205.153	3684.85	1.388	-1195	770.56	3.128	-0093	4675							
.4500	-1653.6	1653.6	.0	.00	-205.153	1683.10	15.652	-0727	-299.86	4.584	0122	4578							
.4550	-1569.9	1569.9	.0	.00	-205.153	-1305.14	16.401	-1138	-1007.82	1.019	0277	4535							
.4600	-1499.3	1499.3	.0	.00	-205.153	-2905.47	4.851	-0703	-591.23	-3.284	0212	4575							
.4650	-1437.6	1437.6	.0	.00	-205.153	-2063.44	-8.608	-0591	295.45	-3.846	0014	4686							
.4700	-1377.0	1377.0	.0	.00	-205.153	157.68	-13.481	-0008	794.02	-0.933	-0115	4820							
.4750	-1317.4	1317.4	.0	.00	-205.153	1945.11	-7.749	-0577	391.40	2.456	-0069	4938							
.4800	-1275.6	1275.6	.0	.00	-205.153	2137.95	3.236	-0693	-455.62	2.208	0066	5030							
.4850	-1233.0	1233.0	.0	.00	-205.153	742.01	10.914	-0310	-603.93	-8.65	0103	5091							
.4900	-1189.1	1189.1	.0	.00	-205.153	-1070.18	9.955	-0250	47.05	-2.431	0006	5129							
.4950	-1143.3	1143.3	.0	.00	-205.153	-1935.57	1.845	-0563	554.99	-6.66	-0082	5158							
.5000	-1095.4	1095.4	.0	.00	-205.153	-1313.37	-6.848	-0425	278.75	1.737	-0049	5181							
.5050	-1054.7	1054.7	.0	.00	-205.153	200.50	-9.764	-0023	-327.00	1.557	0047	5195							
.5100	-1019.9	1019.9	.0	.00	-205.153	1426.65	-5.340	-0426	-434.24	-6.52	0071	5191							
.5150	-984.9	984.9	1979.1	.00	-205.153	1816.13	3.001	-0493	19.57	-1.803	0000	5172							
.5200	-955.1	955.1	4553.2	.00	-205.153	938.83	10.469	-0138	421.92	-5.23	-0066	5212							
.5250	-937.2	937.2	5401.4	.00	-205.153	-780.62	10.953	-0434	239.27	1.384	-0041	5408							
.5300	-933.4	933.4	4439.9	.00	-205.153	-2032.41	3.469	-0821	-253.60	1.325	0037	5800							
.5350	-81.6	940.5	1481.8	.00	-205.153	-2861.49	-7.675	-0727	-386.39	-5.00	0061	6352							
.5400	-43.1	941.1	773.0	.00	-205.153	-647.15	-17.583	-0044	16.39	-1.540	0001	6822							
.5450	-242.3	927.4	2010.4	.00	-205.153	2341.31	-13.074	-0786	349.38	-4.71	-0056	7092							

SEC	LB/IN2	PA3	PH3	OMW3D	OMW3	QG31DD	QG31D	QG31	QG32DD	QG32D	QG32	VTW3
IN	IN/SEC2	IN/SEC	IN/SEC	IN/SEC	IN/SEC	IN/SEC	IN/SEC	IN	IN/SEC2	IN/SEC	IN	IN
.2750	2705.3	2400.9	-5106.3	.00	-186.209-17817.12	57.907	2868	-4688.98	-8.109	.4174	1.376	
.2800	2460.8	2582.3	-5043.1	.00	-186.209-18081.72	-38.590	.3357	617.12	-19.315	.3374	1.377	
.2850	2340.0	2753.8	-5093.8	.00	-186.209-4738.11	-99.483	-.0377	4112.03	-5.106	.2689	1.443	
.2900	2303.2	2915.2	-5218.3	.00	-186.209 11034.27	-81.899	-.5245	1648.08	11.530	.2903	1.578	
.2950	2134.3	3103.2	-5237.5	.00	-186.209 17236.98	-5.530	-.7561	-2592.30	8.477	.3494	1.704	
.3000	1772.3	3295.8	-5068.1	.00	-186.209 9965.63	67.404	-.5860	-2680.00	-6.833	.3536	1.744	
.3050	1345.4	3458.7	-4804.0	.00	-186.209-4238.82	82.277	-.1818	944.21	-11.580	.2998	1.710	
.3100	1000.4	3596.1	-4596.5	.00	-186.209-13998.91	32.751	.1264	2808.84	-3.349	.2659	1.688	
.3150	812.3	3716.4	-4528.7	.00	-186.209-12266.86	-37.936	.1097	433.09	9.222	.2932	1.750	
.3200	724.0	3827.4	-4551.4	.00	-186.209-1366.01	-74.178	-.1936	-2574.95	3.080	.3304	1.889	
.3250	574.4	3979.3	-4553.7	.00	-186.209 9588.97	-51.588	-.5311	-1966.71	-9.899	.3120	2.036	
.3300	333.4	4103.5	-4436.9	.00	-186.209 12312.72	7.544	-.6470	1286.44	-11.708	.2510	2.131	
.3350	81.2	4188.0	-4269.2	.00	-186.209 5436.93	55.109	-.4758	2764.77	.025	.2186	2.173	
.3400	-30.4	4216.9	-4186.5	.00	-186.209-5086.69	55.889	-.1767	739.90	9.832	.2481	2.185	
.3450	-237.7	4180.0	-3942.3	.00	-186.209-10329.39	13.931	.0089	-2392.67	5.213	.2924	2.191	
.3500	-273.1	4116.7	-3843.6	.00	-186.209-7504.02	-33.799	-.0467	-2136.94	-7.756	.2854	2.237	
.3550	-253.9	4055.5	-3801.6	.00	-186.209 706.10	-51.858	-.2782	648.18	-11.612	.2310	2.342	
.3600	-278.5	3991.6	-3713.1	.00	-186.209 7805.72	-28.702	-.4946	2104.35	-3.455	.1903	2.481	
.3650	-362.9	3916.3	-3553.4	.00	-186.209 8464.59	15.105	-.5300	717.83	4.625	.1962	2.616	
.3700	-502.4	3822.9	-3320.5	.00	-186.209 2685.47	44.875	-.3678	-1304.92	2.818	.2191	2.716	
.3750	-678.0	3745.4	-3067.3	.00	-186.209-4641.96	39.242	-.1420	-1347.65	-4.715	.2144	2.791	
.3800	-834.0	3652.9	-2818.9	.00	-186.209-7718.15	5.744	-.0230	189.09	-7.751	.1799	2.885	
.3850	-937.3	3549.0	-2611.7	.00	-186.209-4545.65	-27.267	-.0836	1044.34	-3.897	.1490	3.033	
.3900	-1011.5	3435.7	-2424.2	.00	-186.209 1923.02	-34.128	-.2507	262.89	-.042	.1408	3.226	
.3950	-1089.2	3312.6	-2223.4	.00	-186.209 6378.64	-11.573	-.3744	-729.25	-1.471	.1391	3.415	
.4000	-1191.9	3177.4	-1985.4	.00	-186.209 5528.68	20.487	-.3503	-461.71	-4.957	.1224	3.584	
.4050	-1300.1	3028.3	-1728.2	.00	-186.209 495.35	36.492	-.1972	558.06	-4.624	.0963	3.645	
.4100	-1392.9	2903.9	-1511.0	.00	-186.209-4497.74	25.483	-.0317	794.39	-.638	.0826	3.726	
.4150	-1458.7	2786.1	-1327.6	.00	-186.209-5565.65	-1.747	.0299	-146.14	1.334	.0864	3.831	
.4200	-1484.4	2661.4	-1177.1	.00	-186.209-2294.57	-22.805	-.0384	-907.77	-1.655	.0872	3.962	
.4250	-1488.1	2530.1	-1042.0	.00	-186.209 2385.26	-22.357	-.1612	-411.78	-5.418	.0684	4.092	
.4300	-1486.5	2397.5	-911.0	.00	-186.209 4763.36	-2.980	-.2295	689.86	-4.603	.0410	4.190	
.4350	-1507.5	2291.7	-784.2	.00	-186.209 3256.62	18.557	-.1874	948.67	.099	.0292	4.248	
.4400	-1508.5	2182.2	-673.7	.00	-186.209-614.37	25.492	-.0691	63.33	2.970	.0388	4.282	
.4450	-1494.2	2082.2	-588.6	.00	-186.209-3709.48	13.717	.0355	-781.04	.894	.0502	4.310	
.4500	-1472.4	1998.8	-526.4	.00	-186.209-3750.78	-6.413	.0538	-579.96	-2.924	.0447	4.351	
.4550	-1443.6	1913.0	-469.4	.00	-186.209-947.55	-18.965	-.0155	265.30	-3.716	.0263	4.406	
.4600	-1400.3	1825.9	-425.6	.00	-186.209 2306.00	-15.176	-.1078	665.92	-.998	.0136	4.463	
.4650	-1352.2	1737.7	-385.5	.00	-186.209 3508.86	.526	-.1469	233.28	1.542	.0159	4.505	
.4700	-1320.4	1673.6	-353.2	.00	-186.209 1913.79	15.084	-.1045	-334.94	1.154	.0239	4.519	
.4750	-1289.7	1615.4	-325.7	.00	-186.209-1024.70	17.353	-.0172	-320.53	-.745	.0249	4.510	
.4800	-1248.7	1556.5	-307.8	.00	-186.209-2952.60	6.558	.0466	102.15	-1.308	.0188	4.498	
.4850	-1195.6	1497.3	-301.7	.00	-186.209-2484.26	-8.076	.0419	270.62	-.159	.0148	4.506	
.4900	-1139.3	1438.0	-298.7	.00	-186.209 2060.01	-9.997	-.0211	3.43	.643	.0166	4.531	
.4950	-1087.5	1378.6	-291.1	.00	-186.209 2535.47	2.410	-.1087	-76.19	-1.063	.0185	4.560	
.5000	-1042.9	1321.0	-278.1	.00	-186.209 1024.55	11.943	-.0896	262.90	-.550	.0105	4.556	
.5050	-1000.0	1245.1	-283.1	.00	-186.209-1123.93	11.587	-.0062	255.54	.938	.0115	4.533	
.5100	-954.6	1245.1	-290.5	.00	-186.209-2241.65	2.493	.0313	-106.60	1.361	.0180	4.517	
.5150	-906.3	1207.1	-300.8	.00	-186.209-1587.32	-7.776	.0167	-342.48	.075	.0221	4.517	
.5200	-856.9	1169.4	-312.5	.00	-186.209 192.72	-11.434	-.0351	-141.29	-1.328	.0186	4.528	
.5250	-812.9	1131.8	-318.9	.00	-186.209 1656.45	-6.376	-.0827	244.99	-1.049	.0118	4.532	
.5300	-771.1	1094.4	-323.2	.00	-186.209 1747.83	2.801	-.0918	320.95	.539	.0104	4.524	
.5350	-728.5	1062.6	-334.0	.00	-186.209 520.95	8.867	-.0600	18.18	1.457	.0160	4.504	
.5400	-682.0	1037.4	-355.4	.00	-186.209-923.42	7.597	-.0157	-261.03	.728	.0221	4.480	
.5450	-635.0	1012.5	9.3	.00	-186.209-923.42	7.597	-.0157	-261.03	.728	.0221	4.480	

SEC	FGW31	FGW32	FGW33	FAX31	FAX32	FAX33	S3DD	S3D	S3	FFBU3	FFBL3
LB	LB	LB	LB	LB	LB	LB	IN/SEC2	IN/SEC	IN	LB	LB
.2750	-125712.	753.	-53991.	16156.	-1838.	-11753.	-563.0	33.724	6.9873	.0	.0
.2800	-124208.	680.	-53966.	15365.	-2597.	-51051.	-347.5	31.212	7.1497	.0	.0
.2850	-125497.	529.	-52911.	9220.	-1675.	-50914.	-479.5	29.137	7.3001	.0	.0
.2900	-128593.	508.	-50750.	2640.	-194.	-51014.	-703.6	27.356	7.4416	.0	.0
.2950	-129119.	487.	-48730.	107.	1297.	-50514.	-750.2	24.608	7.5720	.0	.0
.3000	-125029.	481.	-48103.	2654.	554.	-49190.	-664.5	21.023	7.6861	.0	.0
.3050	-118615.	486.	-48639.	7578.	-1312.	-47604.	-448.2	17.656	7.7826	.0	.0
.3100	-113578.	490.	-48992.	11105.	-2400.	-46438.	-269.7	15.092	7.8640	.0	.0
.3150	-111961.	480.	-47994.	10314.	-1801.	-45805.	-266.8	13.589	7.9353	.0	.0
.3200	-112556.	458.	-45771.	5808.	-30.	-45256.	-473.7	12.600	8.0007	.0	.0
.3250	-112668.	434.	-43426.	796.	617.	-44346.	-668.7	10.938	8.0600	.0	.0
.3300	-109853.	419.	-41900.	-1229.	398.	-42908.	-889.3	8.327	8.1085	.0	.0
.3350	-105781.	412.	-41238.	975.	-525.	-41500.	-1371.7	4.746	8.1416	.0	.0
.3400	-103767.	410.	-41045.	4848.	-173.	-38347.	-370.2	-138	8.1528	.0	.0
.3450	-97774.	409.	-40949.	7440.	-1205.	-39668.	19.4	-4.729	8.1384	.0	.0
.3500	-95335.	402.	-40216.	5979.	-776.	-38869.	-83.7	-4.859	8.1137	.0	.0
.3550	-94282.	385.	-38533.	2002.	-346.	-37877.	-223.2	-5.304	8.0898	.0	.0
.3600	-92090.	363.	-36298.	-1289.	140.	-36432.	-356.5	-6.561	8.0354	.0	.0
.3650	-88154.	342.	-34151.	-1686.	397.	-34700.	-392.2	-8.266	7.9984	.0	.0
.3700	-82415.	326.	-32551.	582.	159.	-30780.	-406.6	-10.129	7.9524	.0	.0
.3750	-76186.	313.	-31341.	3315.	-500.	-30780.	-304.4	-11.691	7.8976	.0	.0
.3800	-70067.	298.	-29845.	4211.	-941.	-28682.	-256.8	-12.879	7.8361	.0	.0
.3850	-64952.	275.	-27471.	2619.	-711.	-26555.	-265.7	-13.970	7.7689	.0	.0
.3900	-60315.	244.	-24376.	-89.	43.	-24347.	-325.1	-15.246	7.6960	.0	.0
.3950	-55348.	214.	-21366.	-1881.	611.	-22072.	-371.7	-16.830	7.6159	.0	.0
.4000	-49467.	191.	-19128.	-1698.	494.	-19792.	-333.5	-18.449	7.5276	.0	.0
.4050	-43107.	177.	-17677.	69.	-109.	-17645.	-337.8	-19.882	7.4318	.0	.0
.4100	-37736.	164.	-16384.	1972.	-621.	-15603.	-282.6	-21.305	7.3287	.0	.0
.4150	-33194.	147.	-14702.	2461.	-580.	-14108.	-255.1	-22.471	7.2191	.0	.0
.4200	-29455.	126.	-12604.	1175.	-148.	-12471.	-251.5	-23.598	7.1039	.0	.0
.4250	-26091.	105.	-10528.	-775.	247.	-10874.	-238.9	-24.695	6.9832	.0	.0
.4300	-22828.	90.	-8957.	-1858.	336.	-9439.	-197.3	-25.658	6.8572	.0	.0
.4350	-19677.	80.	-8030.	-1325.	162.	-8288.	-155.3	-26.448	6.7268	.0	.0
.4400	-16926.	75.	-7491.	309.	-96.	-7406.	-131.5	-27.019	6.5931	.0	.0
.4450	-14800.	70.	-7035.	1649.	-291.	-6702.	-140.5	-27.657	6.4564	.0	.0
.4500	-13243.	64.	-6385.	1621.	-333.	-6037.	-96.2	-28.173	6.3167	.0	.0
.4550	-11811.	55.	-5507.	415.	-146.	-5325.	-80.3	-28.540	6.1749	.0	.0
.4600	-10704.	46.	-4588.	-890.	143.	-4702.	-79.8	-28.876	6.0314	.0	.0
.4650	-9687.	39.	-3926.	-1302.	328.	-4223.	-107.6	-29.282	5.8860	.0	.0
.4700	-8869.	37.	-3692.	-596.	222.	-3914.	-80.6	-29.754	5.7384	.0	.0
.4750	-8173.	38.	-3848.	579.	-349.	-3623.	-32.7	-30.004	5.5889	.0	.0
.4800	-7711.	40.	-4025.	1285.	-318.	-3519.	-12.1	-30.094	5.4386	.0	.0
.4850	-7538.	39.	-3905.	1082.	-24.	-3391.	-9.5	-30.137	5.2880	.0	.0
.4900	-7442.	35.	-3501.	234.	-301.	-3215.	-28.1	-30.242	5.1371	.0	.0
.4950	-7233.	30.	-3043.	-603.	256.	-3077.	5.0	-30.320	4.9856	.0	.0
.5000	-6894.	29.	-2898.	-804.	301.	-3077.	-7.3	-30.336	4.8340	.0	.0
.5050	-7001.	31.	-3110.	-252.	75.	-3115.	14.6	-30.355	4.6823	.0	.0
.5100	-7169.	35.	-3472.	585.	-165.	-3248.	36.1	-30.246	4.5307	.0	.0
.5150	-7409.	37.	-3722.	1058.	-223.	-3415.	30.7	-30.088	4.3799	.0	.0
.5200	-7682.	37.	-3723.	831.	-97.	-3522.	26.1	-30.004	4.2297	.0	.0
.5250	-7827.	36.	-3555.	113.	91.	-3524.	57.3	-29.842	4.0800	.0	.0
.5300	-7920.	35.	-3483.	-504.	223.	-3535.	96.4	-29.502	3.9316	.0	.0
.5350	-8174.	36.	-3619.	-528.	183.	-3634.	85.3	-29.095	3.7851	.0	.0
.5400	-8691.	53.	-3934.	-21.	82.	-3879.	337.6	-28.622	3.6407	.0	.0
.5450	-7969.	43.	-4317.	583.	87.	-3921.					

RUN NO.		70		PAGE NO.		30		THGT1	
T	ALPHA	BETA	VAIR	FP1	FP2	FP3	MP1	MP2	MP3
SEC	DEG	DEG	FT/SEC	LB	LB	LB	IN LB	IN LB	IN LB
OMG1D	OMG1DD	OMG1D	OMG1D	OMG1D	OMG1D	OMG1D	OMG1D	OMG1D	OMG1D
DEG	RAD/SEC	RAD/SEC	RAD/SEC	RAD/SEC	RAD/SEC	RAD/SEC	RAD/SEC	RAD/SEC	RAD/SEC
.2750	11.917	.015	172.453	7852.	0.	-37205.	0.	0.	0.
.2800	11.459	-.015	172.111	7370.	0.	-36355.	0.	0.	0.
.2850	10.993	-.045	171.767	6894.	0.	-35492.	0.	0.	0.
.2900	10.518	-.075	171.420	6428.	0.	-34618.	0.	0.	0.
.2950	10.038	-.106	171.071	5972.	0.	-33736.	0.	0.	0.
.3000	9.554	-.136	170.721	5528.	0.	-32846.	0.	0.	0.
.3050	9.057	-.167	170.364	5091.	0.	-31938.	0.	0.	0.
.3100	8.534	-.197	169.989	4649.	0.	-30985.	0.	0.	0.
.3150	7.989	-.227	169.580	4209.	0.	-29988.	0.	0.	0.
.3200	7.446	-.256	169.151	3789.	0.	-28990.	0.	0.	0.
.3250	6.910	-.284	168.715	3394.	0.	-28006.	0.	0.	0.
.3300	6.370	-.315	168.322	3018.	0.	-27032.	0.	0.	0.
.3350	5.812	-.345	167.943	2651.	0.	-26040.	0.	0.	0.
.3400	5.265	-.374	167.583	2310.	0.	-25073.	0.	0.	0.
.3450	4.732	-.401	167.212	1998.	0.	-24131.	0.	0.	0.
.3500	4.216	-.426	166.846	1711.	0.	-23219.	0.	0.	0.
.3550	3.697	-.451	166.481	1441.	0.	-22308.	0.	0.	0.
.3600	3.196	-.475	166.115	1197.	0.	-21430.	0.	0.	0.
.3650	2.725	-.498	165.745	980.	0.	-20601.	0.	0.	0.
.3700	2.265	-.521	165.375	783.	0.	-19794.	0.	0.	0.
.3750	1.816	-.543	165.007	603.	0.	-19011.	0.	0.	0.
.3800	1.395	-.565	164.634	445.	0.	-18274.	0.	0.	0.
.3850	.997	-.585	164.259	306.	0.	-17576.	0.	0.	0.
.3900	.606	-.606	163.884	179.	0.	-16895.	0.	0.	0.
.3950	.238	-.625	163.507	68.	0.	-16254.	0.	0.	0.
.4000	-.101	-.645	163.126	-28.	0.	-15659.	0.	0.	0.
.4050	-.429	-.663	162.743	-113.	0.	-15087.	0.	0.	0.
.4100	-.741	-.682	162.358	-188.	0.	-14544.	0.	0.	0.
.4150	-1.027	-.700	161.969	-252.	0.	-14042.	0.	0.	0.
.4200	-1.300	-.717	161.578	-308.	0.	-13563.	0.	0.	0.
.4250	-1.564	-.734	161.186	-358.	0.	-13103.	0.	0.	0.
.4300	-1.806	-.750	160.790	-400.	0.	-12678.	0.	0.	0.
.4350	-2.033	-.765	160.391	-436.	0.	-12277.	0.	0.	0.
.4400	-2.252	-.781	159.990	-468.	0.	-11994.	0.	0.	0.
.4450	-2.451	-.796	159.586	-494.	0.	-11541.	0.	0.	0.
.4500	-2.635	-.812	159.179	-516.	0.	-11213.	0.	0.	0.
.4550	-2.811	-.828	158.770	-535.	0.	-10900.	0.	0.	0.
.4600	-2.969	-.844	158.358	-550.	0.	-10615.	0.	0.	0.
.4650	-3.112	-.858	157.943	-563.	0.	-10353.	0.	0.	0.
.4700	-3.246	-.870	157.527	-573.	0.	-10106.	0.	0.	0.
.4750	-3.367	-.881	157.108	-581.	0.	-9881.	0.	0.	0.
.4800	-3.475	-.892	156.686	-587.	0.	-9675.	0.	0.	0.
.4850	-3.577	-.902	156.262	-593.	0.	-9478.	0.	0.	0.
.4900	-3.668	-.911	155.837	-596.	0.	-9299.	0.	0.	0.
.4950	-3.751	-.920	155.410	-599.	0.	-9133.	0.	0.	0.
.5000	-3.826	-.927	154.980	-600.	0.	-8978.	0.	0.	0.
.5050	-3.893	-.934	154.549	-601.	0.	-8836.	0.	0.	0.
.5100	-3.952	-.940	154.115	-601.	0.	-8706.	0.	0.	0.
.5150	-4.004	-.945	153.680	-601.	0.	-8586.	0.	0.	0.
.5200	-4.044	-.953	153.241	-600.	0.	-8483.	0.	0.	0.
.5250	-4.072	-.962	152.800	-598.	0.	-8395.	0.	0.	0.
.5300	-4.095	-.970	152.357	-595.	0.	-8316.	0.	0.	0.
.5350	-4.116	-.974	151.913	-593.	0.	-8240.	0.	0.	0.
.5400	-4.146	-.970	151.469	-591.	0.	-8152.	0.	0.	0.
.5450	-4.169	-.966	151.023	-589.	0.	-8074.	0.	0.	0.

RUN NO.		70		PAGE NO.		31		FH3	
SEC	T	RUNOUT	SH	VH	PHIK	ALPHC	FH1	FH2	FH3
		FT	FT	FT	DEG	DEG	L3	LB	LB
.2750	40.919	-112	-1.858	97.135	2.255	2.255	-74621.	-2709.	2938.
.2800	41.691	-114	-1.905	96.827	2.275	2.275	-75471.	-2696.	2998.
.2850	42.468	-115	-1.958	96.502	2.300	2.300	-76319.	-2674.	3066.
.2900	43.240	-116	-2.016	96.161	2.332	2.332	-77165.	-2653.	3143.
.2950	44.010	-118	-2.081	95.803	2.370	2.370	-78008.	-2630.	3229.
.3000	44.778	-119	-2.151	95.429	2.413	2.413	-78849.	-2603.	3322.
.3050	45.545	-121	-2.226	95.040	2.460	2.460	-79688.	-2572.	3424.
.3100	46.310	-122	-2.306	94.640	2.512	2.512	-80390.	-2527.	3527.
.3150	47.073	-124	-2.390	94.233	2.566	2.566	-80893.	-2495.	3625.
.3200	47.836	-127	-2.477	93.823	2.622	2.622	-81395.	-2466.	3728.
.3250	48.597	-129	-2.568	93.418	2.681	2.681	-81896.	-2631.	3835.
.3300	49.356	-131	-2.662	92.990	2.741	2.741	-82395.	-2317.	3945.
.3350	50.115	-134	-2.758	92.575	2.802	2.802	-82894.	-2252.	4057.
.3400	50.874	-137	-2.856	92.167	2.862	2.862	-83392.	-2446.	4169.
.3450	51.631	-140	-2.954	91.765	2.922	2.922	-83890.	-2370.	4282.
.3500	52.388	-143	-3.053	91.370	2.981	2.981	-84387.	-2287.	4395.
.3550	53.144	-147	-3.154	90.984	3.040	3.040	-84884.	-2197.	4508.
.3600	53.900	-150	-3.254	90.608	3.097	3.097	-85380.	-2101.	4619.
.3650	54.655	-154	-3.354	90.241	3.153	3.153	-85876.	-1998.	4730.
.3700	55.409	-159	-3.454	89.883	3.207	3.207	-86371.	-1888.	4840.
.3750	56.162	-163	-3.554	89.535	3.260	3.260	-86865.	-1771.	4948.
.3800	56.914	-168	-3.654	89.199	3.311	3.311	-87359.	-1645.	5055.
.3850	57.666	-173	-3.752	88.873	3.361	3.361	-87874.	-1511.	5161.
.3900	58.416	-178	-3.850	88.558	3.409	3.409	-88462.	-1370.	5269.
.3950	59.165	-184	-3.947	88.255	3.454	3.454	-89049.	-1212.	5375.
.4000	59.913	-189	-4.042	87.964	3.497	3.497	-89635.	-1056.	5478.
.4050	60.660	-195	-4.135	87.684	3.538	3.538	-90220.	-892.	5579.
.4100	61.406	-201	-4.227	87.418	3.577	3.577	-90805.	-720.	5676.
.4150	62.150	-208	-4.316	87.165	3.613	3.613	-91389.	-541.	5770.
.4200	62.894	-214	-4.404	86.925	3.646	3.646	-91972.	-355.	5861.
.4250	63.635	-221	-4.489	86.698	3.677	3.677	-92554.	-163.	5948.
.4300	64.376	-227	-4.571	86.484	3.705	3.705	-93135.	33.	6032.
.4350	65.114	-234	-4.652	86.282	3.731	3.731	-93715.	233.	6112.
.4400	65.852	-241	-4.729	86.094	3.755	3.755	-94294.	435.	6189.
.4450	66.587	-247	-4.805	85.918	3.776	3.776	-94872.	640.	6262.
.4500	67.321	-254	-4.878	85.753	3.796	3.796	-95449.	847.	6333.
.4550	68.054	-261	-4.949	85.600	3.813	3.813	-96024.	1056.	6400.
.4600	68.784	-268	-5.017	85.458	3.828	3.828	-96599.	1267.	6463.
.4650	69.513	-274	-5.084	85.327	3.841	3.841	-97078.	1477.	6518.
.4700	70.240	-281	-5.148	85.204	3.853	3.853	-97515.	1683.	6568.
.4750	70.965	-287	-5.210	85.091	3.863	3.863	-97952.	1887.	6614.
.4800	71.688	-293	-5.270	84.986	3.871	3.871	-98388.	2086.	6658.
.4850	72.409	-300	-5.329	84.889	3.878	3.878	-98822.	2281.	6700.
.4900	73.128	-305	-5.386	84.800	3.884	3.884	-99256.	2471.	6739.
.4950	73.846	-311	-5.441	84.718	3.889	3.889	-99689.	2655.	6776.
.5000	74.561	-317	-5.494	84.642	3.892	3.892	-100120.	2832.	6812.
.5050	75.274	-322	-5.545	84.573	3.894	3.894	-100551.	3001.	6845.
.5100	75.985	-327	-5.595	84.510	3.895	3.895	-100980.	3163.	6876.
.5150	76.694	-331	-5.644	84.453	3.895	3.895	-101408.	3315.	6905.
.5200	77.401	-336	-5.691	84.401	3.895	3.895	-101835.	3461.	6933.
.5250	78.106	-340	-5.736	84.354	3.893	3.893	-102261.	3603.	6959.
.5300	78.809	-344	-5.780	84.312	3.890	3.890	-102686.	3740.	6983.
.5350	79.509	-348	-5.822	84.275	3.887	3.887	-103109.	3871.	7005.
.5400	80.207	-352	-5.863	84.242	3.882	3.882	-103531.	3989.	7026.
.5450	80.903	-355	-5.903	84.211	3.878	3.878	-103874.	4086.	7041.

T	QBDD1	QB01	QBDD2	QB02	QBDD3	QB03	QBDD4	QB04	QB
SEC	IN/SEC2	IN/SEC1	IN/SEC2	IN/SEC	IN/SEC2	IN/SEC	IN/SEC2	IN/SEC	
1800.21	-11.107	-5.7349	245.73	.115	-7255	2955.98	69.177	-6.3800	2.418
1800.21	-11.107	-5.7349	245.73	.115	-7255	2955.98	69.177	-6.3800	2.418
1815.61	-2.067	-5.7679	242.00	1.335	-7218	2581.04	83.021	-5.9987	34.51
1815.61	-2.067	-5.7679	242.00	1.335	-7218	2581.04	83.021	-5.9987	34.51
1803.77	6.971	-5.7556	234.25	2.524	-7122	2147.76	94.819	-5.5532	2.759
1803.77	6.971	-5.7556	234.25	2.524	-7122	2147.76	94.819	-5.5532	2.759
1784.19	15.925	-5.6983	225.38	3.671	-6966	1709.15	104.419	-5.0542	3.46
1784.19	15.925	-5.6983	225.38	3.671	-6966	1709.15	104.419	-5.0542	3.46
1755.97	24.764	-5.5965	215.38	4.771	-6755	1273.27	111.839	-4.5126	-10.08
1755.97	24.764	-5.5965	215.38	4.771	-6755	1273.27	111.839	-4.5126	-10.08
1701.54	33.403	-5.4510	201.85	5.813	-6490	811.56	117.025	-3.9395	-23.02
1701.54	33.403	-5.4510	201.85	5.813	-6490	811.56	117.025	-3.9395	-23.02
1389.45	41.294	-5.2636	112.98	6.654	-6177	-70.39	119.137	-3.3472	-9.62
1389.45	41.294	-5.2636	112.98	6.654	-6177	-70.39	119.137	-3.3472	-9.62
1065.72	47.412	-5.0411	23.99	6.992	-5834	-914.81	116.599	-2.7561	2.46
1065.72	47.412	-5.0411	23.99	6.992	-5834	-914.81	116.599	-2.7561	2.46
939.77	52.405	-4.7913	-52	7.048	-5482	-1347.57	103.867	-2.1866	-8.47
939.77	52.405	-4.7913	-52	7.048	-5482	-1347.57	103.867	-2.1866	-8.47
938.18	61.645	-4.2202	-49	7.200	-4770	-1871.33	95.584	-1.1505	-40.48
938.18	61.645	-4.2202	-49	7.200	-4770	-1871.33	95.584	-1.1505	-40.48
3300	64.922	-3.9031	-130.34	7.079	-4412	-2529.89	84.578	-3.101	1.956
3300	64.922	-3.9031	-130.34	7.079	-4412	-2529.89	84.578	-3.101	1.956
3300	66.466	-3.5739	-121.27	5.940	-3757	-3116.11	54.669	-0.025	1.844
3300	66.466	-3.5739	-121.27	5.940	-3757	-3116.11	54.669	-0.025	1.844
3340	66.975	-3.2402	-102.40	5.429	-3473	-2996.99	39.620	-2.379	-47.30
3340	66.975	-3.2402	-102.40	5.429	-3473	-2996.99	39.620	-2.379	-47.30
33450	67.370	-2.9043	-153.50	4.825	-3215	-3225.26	24.214	-3.980	-34.87
33450	67.370	-2.9043	-153.50	4.825	-3215	-3225.26	24.214	-3.980	-34.87
33500	66.886	-2.5680	-181.20	3.979	-2995	-3239.71	7.941	-4.784	-28.32
33500	66.886	-2.5680	-181.20	3.979	-2995	-3239.71	7.941	-4.784	-28.32
33300	64.922	-3.9031	-130.34	7.079	-4412	-2529.89	84.578	-3.101	1.956
33300	64.922	-3.9031	-130.34	7.079	-4412	-2529.89	84.578	-3.101	1.956
33300	66.466	-3.5739	-121.27	5.940	-3757	-3116.11	54.669	-0.025	1.844
33300	66.466	-3.5739	-121.27	5.940	-3757	-3116.11	54.669	-0.025	1.844
33400	66.975	-3.2402	-102.40	5.429	-3473	-2996.99	39.620	-2.379	-47.30
33400	66.975	-3.2402	-102.40	5.429	-3473	-2996.99	39.620	-2.379	-

T	QBDD5	QB5	QBDD6	QB6	QBDD7	QB7	QBDD8	QB8
SEC	IN/SEC2	IN	IN/SEC2	IN/SEC	IN/SEC2	IN	IN/SEC2	IN/SEC
.2750	-1666.53	1.389	-0.625	-1278.56	-24.521	-6615	-1339.92	-2.906
.2800	-1588.50	-6.811	-0.762	-868.80	-29.929	-7985	-1132.03	-9.149
.2850	-1404.84	-14.364	-1.295	-406.28	-33.152	-9571	-823.76	-14.105
.2900	-1104.67	-20.708	-2.178	91.16	-33.965	-1.1260	-419.82	-17.274
.2950	-713.50	-25.305	-3.336	584.79	-32.280	-1.2926	36.37	-18.266
.3000	-285.97	-27.833	-4.674	1020.28	-28.252	-1.4448	473.72	-16.997
.3050	2843.43	-23.531	-6.024	481.31	-23.797	-1.5738	1210.10	-13.070
.3100	5737.56	-2.000	-6.721	-144.48	-22.939	-1.6894	1875.85	-5.361
.3150	5859.20	27.057	-6.095	-14.06	-23.331	-1.8054	2083.23	4.553
.3200	3957.05	50.685	-4.109	688.61	-21.321	-1.9186	1828.41	14.219
.3250	3087.00	66.890	-1.153	985.98	-16.772	-2.0143	1476.01	22.507
.3300	3645.05	80.700	-.2528	784.17	-10.957	-2.0833	1035.41	27.759
.3350	3674.36	98.723	.7014	649.85	-7.200	-2.1285	418.55	31.235
.3400	1364.19	111.672	1.2324	939.37	-3.325	-2.1555	-180.70	31.832
.3450	-1259.30	109.946	1.7922	1236.61	2.706	-2.1577	-776.43	29.187
.3500	-1100.13	102.492	2.3229	652.72	7.872	-2.1300	-1009.11	24.495
.3550	-1540.80	95.938	2.8200	250.49	10.070	-2.0844	-1196.59	18.911
.3600	-3959.91	81.964	3.2700	493.88	11.935	-2.0299	-1473.26	12.137
.3650	-5458.18	56.281	3.6190	540.21	15.096	-1.9625	-1530.88	4.324
.3700	-4387.16	30.608	3.8338	-98.68	16.447	-1.8823	-1206.78	-2.697
.3750	-4614.83	8.361	3.9319	-239.76	15.445	-1.8023	-955.12	-8.118
.3800	-5761.23	-18.854	3.9083	14.97	15.188	-1.7263	-767.18	-12.599
.3850	-4365.47	-45.987	3.7433	-378.21	14.748	-1.6507	-276.63	-15.438
.3900	-2588.39	-63.296	3.4664	-755.21	11.805	-1.5835	248.37	-15.509
.3950	-2622.17	-76.620	3.1169	-458.43	8.790	-1.5327	515.80	-13.623
.4000	-1453.28	-88.536	2.7017	-454.75	6.986	-1.4933	835.16	-10.424
.4050	943.08	-90.107	2.2500	-791.33	3.923	-1.4653	1187.46	-5.372
.4100	1535.32	-83.731	1.8144	-556.30	.468	-1.4549	1210.31	.674
.4150	2038.64	-76.049	1.4140	-313.47	-1.313	-1.4575	1108.36	6.359
.4200	3838.27	-61.879	1.0654	-529.82	-3.251	-1.4685	1060.01	11.742
.4250	4197.03	-41.413	.8065	-349.89	-5.546	-1.4909	777.75	16.399
.4300	3793.59	-22.221	.6484	-14.80	-6.179	-1.5209	367.30	19.171
.4350	4392.96	-2.376	.5856	-92.35	-6.216	-1.5517	77.75	20.197
.4400	4036.78	19.076	.6282	29.20	-6.456	-1.5837	-292.82	19.681
.4450	2678.45	35.353	.7673	345.61	-5.317	-1.6138	-731.09	17.025
.4500	2217.92	46.917	.9739	296.58	-3.495	-1.6357	-960.38	12.651
.4550	1324.80	55.976	1.2330	343.93	-1.965	-1.6495	-1113.91	7.423
.4600	-301.43	58.090	1.5217	605.04	.534	-1.6537	-1223.48	1.460
.4650	-1023.02	54.079	1.8036	573.70	3.687	-1.6430	-1101.17	-4.492
.4700	-1776.27	47.173	2.0583	512.85	6.404	-1.6177	-909.78	-9.525
.4750	-3007.40	34.838	2.2660	577.92	9.241	-1.5787	-734.42	-13.702
.4800	-3376.79	18.220	2.3994	402.33	11.879	-1.5256	-417.43	-16.674
.4850	-3415.80	1.136	2.4479	181.35	13.341	-1.4621	-56.27	-17.866
.4900	-3631.16	-16.757	2.4093	90.30	14.075	-1.3934	249.84	-17.396
.4950	-3279.36	-34.524	2.2804	-101.08	14.170	-1.3223	562.73	-15.394
.5000	-2588.92	-49.294	2.0694	-324.71	13.107	-1.2537	824.19	-11.895
.5050	-2083.64	-61.134	1.7924	-416.53	11.275	-1.1926	950.98	-7.430
.5100	-1286.89	-69.876	1.4632	-528.42	8.984	-1.1417	1002.52	-2.540
.5150	-296.40	-73.921	1.1016	-634.22	6.080	-1.1038	975.05	2.433
.5200	466.07	-73.525	.7314	-612.84	2.953	-1.0813	830.55	6.976
.5250	1241.75	-69.410	.3725	-562.42	.058	-1.0738	622.24	10.612
.5300	2012.31	-61.282	.0442	-505.15	-2.603	-1.0803	373.22	13.111
.5350	2483.37	-49.987	-.2350	-371.91	-4.799	-1.0991	75.84	14.239
.5400	2751.02	-36.939	-.4528	-212.48	-6.226	-1.1270	-224.35	13.847
.5450	2915.88	-22.771	-.6025	-70.55	-6.909	-1.1602	-484.72	12.049

T	SEC	FT/SEC2	VB1	DD	FT/SEC	VB2	SD	S	VB3	FT/SEC	VB3	VD	V
			FT		FT/SEC	FT/SEC	FT/SEC	FT	FT/SEC2	FT/SEC	FT/SEC	FT/SEC	FT
.5500	-89.905	138.231	87.034	3.1723	-2.3430	-3.870	-1.428	5.423	-10.5651	-5.8469	-7.8921	-5.8469	-7.8921
.5550	-89.993	137.781	87.726	2.9097	-2.3291	-3.692	-1.447	9.023	-10.5277	-5.7483	-7.9211	-5.7483	-7.9211
.5600	-90.036	137.331	88.415	3.0208	-2.3154	-3.534	-1.465	11.538	-10.4753	-5.6387	-7.9495	-5.6387	-7.9495
.5650	-90.079	136.881	89.102	3.2624	-2.3007	-3.385	-1.483	13.865	-10.4112	-5.5208	-7.9774	-5.5208	-7.9774
.5700	-90.185	136.430	89.787	3.9982	-2.2837	-3.230	-1.499	16.007	-10.3357	-5.3940	-8.0047	-5.3940	-8.0047
.5750	-90.342	135.979	90.469	4.6014	-2.2631	-3.059	-1.515	17.167	-10.2519	-5.2609	-8.0314	-5.2609	-8.0314
.5800	-90.487	135.527	91.150	5.0925	-2.2399	-2.882	-1.530	17.757	-10.1640	-5.1251	-8.0573	-5.1251	-8.0573
.5850	-90.660	135.074	91.828	5.5413	-2.2143	-2.702	-1.544	18.079	-10.0739	-4.9881	-8.0826	-4.9881	-8.0826
.5900	-90.843	134.621	92.503	5.9534	-2.1866	-2.522	-1.557	18.263	-9.9826	-4.8503	-8.1072	-4.8503	-8.1072
.5950	-91.035	134.166	93.177	6.2781	-2.1570	-2.345	-1.569	18.267	-9.8910	-4.7124	-8.1311	-4.7124	-8.1311
.6000	-91.222	133.710	93.848	6.4804	-2.1261	-2.174	-1.580	18.401	-9.7991	-4.5745	-8.1543	-4.5745	-8.1543
.6050	-91.426	133.254	94.517	6.6123	-2.0944	-2.015	-1.591	18.557	-9.7065	-4.4359	-8.1769	-4.4359	-8.1769
.6100	-91.640	132.796	95.184	6.7813	-2.0619	-1.867	-1.600	18.566	-9.6134	-4.2970	-8.1987	-4.2970	-8.1987
.6150	-91.848	132.337	95.848	7.0523	-2.0284	-1.727	-1.609	18.491	-9.5205	-4.1589	-8.2198	-4.1589	-8.2198
.6200	-92.048	131.877	96.510	7.4096	-1.9934	-1.588	-1.618	18.397	-9.4281	-4.0217	-8.2403	-4.0217	-8.2403
.6250	-92.261	131.417	97.170	7.7801	-1.9564	-1.447	-1.625	18.167	-9.3365	-3.8863	-8.2601	-3.8863	-8.2601
.6300	-92.415	130.955	97.827	8.0729	-1.9178	-1.306	-1.632	17.948	-9.2460	-3.7532	-8.2791	-3.7532	-8.2791
.6350	-92.525	130.493	98.482	8.2215	-1.8780	-1.169	-1.638	17.924	-9.1562	-3.6220	-8.2976	-3.6220	-8.2976
.6400	-92.637	130.030	99.135	8.2461	-1.8379	-1.043	-1.644	18.073	-9.0660	-3.4919	-8.3154	-3.4919	-8.3154
.6450	-92.749	129.566	99.785	8.2266	-1.7977	-0.929	-1.649	18.305	-8.9749	-3.3624	-8.3325	-3.3624	-8.3325
.6500	-92.852	129.102	100.433	8.2351	-1.7577	-0.823	-1.653	18.611	-8.8824	-3.2333	-8.3490	-3.2333	-8.3490
.6550	-92.952	128.638	101.079	8.2848	-1.7174	-0.736	-1.657	18.954	-8.7882	-3.1042	-8.3648	-3.1042	-8.3648
.6600	-93.052	128.173	101.722	8.3450	-1.6769	-0.651	-1.660	19.291	-8.6924	-2.9753	-8.3800	-2.9753	-8.3800
.6650	-93.149	127.707	102.363	8.3550	-1.6362	-0.571	-1.663	19.648	-8.5948	-2.8464	-8.3946	-2.8464	-8.3946
.6700	-93.244	127.241	103.002	8.2818	-1.5956	-0.501	-1.666	20.042	-8.4954	-2.7173	-8.4085	-2.7173	-8.4085
.6750	-93.297	126.775	103.638	8.1297	-1.5556	-0.442	-1.668	20.446	-8.3939	-2.5880	-8.4218	-2.5880	-8.4218
.6800	-93.331	126.308	104.272	7.9398	-1.5164	-0.396	-1.671	20.842	-8.2905	-2.4582	-8.4344	-2.4582	-8.4344
.6850	-93.366	125.841	104.904	7.7580	-1.4782	-0.364	-1.672	21.222	-8.1851	-2.3281	-8.4463	-2.3281	-8.4463
.6900	-93.401	125.375	105.533	7.5890	-1.4409	-0.342	-1.674	21.566	-8.0779	-2.1977	-8.4577	-2.1977	-8.4577
.6950	-93.438	124.907	106.160	7.4153	-1.4044	-0.329	-1.676	21.861	-7.9692	-2.0673	-8.4683	-2.0673	-8.4683
.7000	-93.478	124.440	106.785	7.2000	-1.3689	-0.326	-1.678	22.121	-7.8591	-1.9370	-8.4783	-1.9370	-8.4783
.7050	-93.518	123.973	107.407	6.9244	-1.3346	-0.335	-1.679	22.380	-7.7477	-1.8069	-8.4877	-1.8069	-8.4877
.7100	-93.559	123.505	108.027	6.5964	-1.3018	-0.356	-1.681	22.656	-7.6349	-1.6769	-8.4964	-1.6769	-8.4964
.7150	-93.601	123.037	108.644	6.2453	-1.2707	-0.390	-1.683	22.934	-7.5208	-1.5470	-8.5045	-1.5470	-8.5045
.7200	-93.554	122.569	109.260	5.8919	-1.2414	-0.438	-1.685	23.185	-7.4053	-1.4172	-8.5119	-1.4172	-8.5119
.7250	-93.281	122.102	109.872	5.5411	-1.2138	-0.497	-1.687	24.192	-7.2886	-1.2875	-8.5186	-1.2875	-8.5186
.7300	-93.137	121.635	110.483	5.1762	-1.1880	-0.566	-1.690	24.518	-7.1706	-1.1580	-8.5247	-1.1580	-8.5247
.7350	-92.956	121.169	111.091	4.7846	-1.1641	-0.646	-1.693	25.073	-7.0515	-1.0286	-8.5302	-1.0286	-8.5302
.7400	-92.874	120.703	111.696	4.3635	-1.1422	-0.737	-1.696	24.988	-6.9308	-0.8991	-8.5350	-0.8991	-8.5350
.7450	-92.691	120.239	112.300	3.9172	-1.1225	-0.840	-1.700	25.441	-6.8093	-0.7700	-8.5392	-0.7700	-8.5392
.7500	-92.607	119.775	112.901	3.4520	-1.1051	-0.954	-1.705	25.327	-6.6867	-0.6412	-8.5427	-0.6412	-8.5427
.7550	-92.491	119.311	113.499	3.2660	-1.0897	-1.077	-1.710	25.488	-6.5636	-0.5132	-8.5456	-0.5132	-8.5456
.7600	-92.500	118.848	114.096	3.2278	-1.0743	-1.189	-1.715	24.452	-6.4427	-0.3888	-8.5479	-0.3888	-8.5479
.7650	-92.401	118.385	114.690	2.7255	-1.0603	-1.306	-1.722	23.454	-6.3271	-0.2712	-8.5495	-0.2712	-8.5495
.7700	-92.369	117.922	115.281	2.0501	-1.0494	-1.443	-1.728	22.103	-6.2175	-0.1607	-8.5506	-0.1607	-8.5506
.7750	-92.258	117.460	115.871	1.4214	-1.0417	-1.600	-1.736	21.421	-6.1128	-0.0559	-8.5511	-0.0559	-8.5511
.7800	-92.220	116.998	116.458	.9585	-1.0366	-1.769	-1.745	20.530	-6.0118	.0440	-8.5511	.0440	-8.5511
.7850	-92.120	116.537	117.042	.2807	-1.0335	-1.944	-1.754	20.178	-5.9138	.1399	-8.5507	.1399	-8.5507
.7900	-92.361	116.076	117.624	.1108	-1.0317	-2.115	-1.764	17.988	-5.8169	.2337	-8.5497	.2337	-8.5497
.7950	-92.228	115.615	118.204	.3192	-1.0308	-2.281	-1.775	18.123	-5.7226	.3237	-8.5483	.3237	-8.5483
.8010	-92.088	115.062	118.897	.0985	-1.0314	-2.475	-1.789	17.292	-5.6125	.4273	-8.5461	.4273	-8.5461

T	OMEGBD1	OMEGBD1	PHID	PHI	OMEGBD2	THETD	OMEGBD3	OMEGBD3	PSID	PSI
SEC	RAD/SEC	RAD/SEC	RAD/SEC	DEG	RAD/SEC	DEG	RAD/SEC	RAD/SEC	RAD/SEC	DEG
.5500	-.0964	-.1362	-.1371	-1.422	1.2458	-1.113	-.6295	.0237	.0265	.917
.5550	.0025	-.1362	-.1370	-1.462	1.0409	-1.063	-.6168	.0208	.0235	.924
.5600	-.0562	-.1363	-.1370	-1.501	.8361	-1.018	-.6204	.0178	.0205	.931
.5650	-.1591	-.1367	-.1374	-1.540	.6571	-.0982	-.6282	.0148	.0175	.936
.5700	-.2717	-.1378	-.1383	-1.580	.4393	-.0956	-.6529	.0117	.0144	.941
.5750	-.3244	-.1392	-.1396	-1.619	.2810	-.0939	-.6673	.0086	.0112	.944
.5800	-.3464	-.1409	-.1412	-1.660	.1508	-.0929	-.6728	.0054	.0081	.947
.5850	-.3608	-.1426	-.1427	-1.700	.0319	-.0925	-.6756	.0021	.0049	.949
.5900	-.3682	-.1443	-.1444	-1.741	-.0596	-.0927	-.6748	-.0011	.0017	.950
.5950	-.3546	-.1461	-.1460	-1.783	-.0841	-.0932	-.6667	-.0043	-.0014	.950
.6000	-.3138	-.1477	-.1475	-1.825	-.0902	-.0937	-.6515	-.0075	-.0045	.949
.6050	-.2618	-.1491	-.1488	-1.868	-.0696	-.0942	-.6325	-.0106	-.0075	.947
.6100	-.2261	-.1502	-.1498	-1.910	-.0092	-.0944	-.6135	-.0135	-.0104	.945
.6150	-.2235	-.1513	-.1508	-1.953	.0628	-.0943	-.5976	-.0164	-.0132	.941
.6200	-.2498	-.1524	-.1517	-1.997	.1222	-.0939	-.5850	-.0192	-.0160	.937
.6250	-.2849	-.1537	-.1529	-2.040	.1944	-.0932	-.5721	-.0220	-.0187	.932
.6300	-.3049	-.1551	-.1542	-2.084	.2658	-.0921	-.5544	-.0247	-.0213	.927
.6350	-.2942	-.1565	-.1555	-2.129	.3223	-.0907	-.5302	-.0272	-.0239	.920
.6400	-.2596	-.1579	-.1568	-2.173	.3694	-.0890	-.5011	-.0297	-.0263	.913
.6450	-.2225	-.1590	-.1578	-2.219	.4100	-.0883	-.4705	-.0320	-.0286	.905
.6500	-.2017	-.1600	-.1587	-2.264	.4315	-.0871	-.4417	-.0341	-.0307	.897
.6550	-.2002	-.1609	-.1595	-2.309	.4382	-.0864	-.4153	-.0361	-.0328	.887
.6600	-.2087	-.1619	-.1604	-2.355	.4382	-.0808	-.3897	-.0380	-.0346	.878
.6650	-.2107	-.1629	-.1613	-2.401	.4315	-.0737	-.3620	-.0397	-.0364	.868
.6700	-.1981	-.1638	-.1621	-2.448	.4215	-.0767	-.3308	-.0413	-.0380	.857
.6750	-.1725	-.1647	-.1629	-2.494	.4126	-.0746	-.2964	-.0427	-.0395	.846
.6800	-.1449	-.1654	-.1636	-2.541	.4059	-.0726	-.2607	-.0440	-.0408	.834
.6850	-.1264	-.1661	-.1641	-2.588	.3998	-.0707	-.2257	-.0451	-.0419	.822
.6900	-.1200	-.1666	-.1646	-2.635	.3957	-.0688	-.1920	-.0460	-.0428	.810
.6950	-.1181	-.1671	-.1651	-2.682	.3924	-.0668	-.1585	-.0467	-.0436	.798
.7000	-.1117	-.1677	-.1656	-2.730	.3912	-.0649	-.1238	-.0473	-.0442	.785
.7050	-.0957	-.1681	-.1660	-2.777	.3930	-.0630	-.0871	-.0477	-.0446	.773
.7100	-.0725	-.1685	-.1663	-2.825	.3977	-.0611	-.0489	-.0479	-.0448	.760
.7150	-.0499	-.1687	-.1666	-2.872	.4029	-.0592	-.0106	-.0479	-.0449	.747
.7200	-.0331	-.1689	-.1667	-2.920	.4085	-.0572	.0265	-.0477	-.0448	.734
.7250	-.0229	-.1689	-.1668	-2.968	.2653	-.0552	.0622	-.0473	-.0445	.721
.7300	-.0150	-.1690	-.1668	-3.016	.2472	-.0532	.0963	-.0468	-.0440	.709
.7350	-.0047	-.1690	-.1668	-3.063	.1870	-.0513	.1302	-.0461	-.0433	.696
.7400	.0100	-.1689	-.1668	-3.111	.2476	-.0494	.1652	-.0452	-.0425	.684
.7450	.0280	-.1687	-.1667	-3.159	.2083	-.0474	.2008	-.0442	-.0415	.672
.7500	.0465	-.1685	-.1665	-3.207	.2727	-.0454	.2354	-.0429	-.0404	.660
.7550	.0533	-.1682	-.1662	-3.254	.2433	-.0434	.2581	-.0416	-.0391	.649
.7600	.1170	-.1677	-.1658	-3.302	.2564	-.0413	.2773	-.0401	-.0377	.638
.7650	.2535	-.1668	-.1649	-3.349	.1734	-.0395	.3147	-.0385	-.0362	.627
.7700	.3937	-.1651	-.1633	-3.396	.1926	-.0378	.3567	-.0367	-.0344	.617
.7750	.5077	-.1628	-.1611	-3.443	.1376	-.0362	.3941	-.0347	-.0325	.607
.7800	.5814	-.1601	-.1585	-3.489	.1702	-.0346	.4228	-.0325	-.0304	.598
.7850	.6464	-.1570	-.1556	-3.534	.1317	-.0331	.4904	-.0302	-.0281	.590
.7900	.6680	-.1539	-.1525	-3.578	.4795	-.0317	.4884	-.0278	-.0258	.582
.7950	.6497	-.1506	-.1494	-3.621	.4506	-.0300	.4310	-.0255	-.0236	.575
.8010	.6222	-.1466	-.1455	-3.672	.4290	-.0280	.4273	-.0227	-.0209	.568

SEC	T	PH1	LB/IN2	PAL	PHS1	OMWID	RAD/SEC2	OMW1	QG1DD1	IN/SEC2	QG1D1	IN/SEC	QG11	IN	QG1DD2	IN/SEC2	QG1D2	IN/SEC	QG12	IN	VWT
5500		-774.1	2293.2	95.2	93.3	.00	-217.503	.00	-614.04	3.121	3.121	3.121	-.1989	285.89	-.632	.0240	2.890				
5550		-854.8	2219.4	93.3	124.5	.00	-217.503	.00	457.36	4.214	4.214	4.214	-.1832	26.02	-.700	.0216	2.991				
5600		-1040.8	2139.2	124.5	152.2	.00	-217.503	.00	-288.89	6.678	6.678	6.678	-.1545	272.87	-.335	.0185	3.064				
5650		-1174.2	2049.1	152.2	170.6	.00	-217.503	.00	-992.83	3.745	3.745	3.745	-.1269	20.04	-.620	.0167	3.126				
5700		-1210.7	1953.0	170.6	192.7	.00	-217.503	.00	91.62	2.301	2.301	2.301	-.1143	192.67	-.424	.0137	3.201				
5750		-1238.2	1851.1	192.7	217.0	.00	-217.503	.00	-39.70	4.076	4.076	4.076	-.0982	121.60	-.342	.0120	3.259				
5800		-1264.8	1742.2	217.0	217.0	.00	-217.503	.00	-733.56	2.613	2.613	2.613	-.0800	76.71	-.206	.0108	3.295				
5850		-1215.9	1643.8	217.4	220.0	.00	-217.503	.00	-297.32	.370	.370	.370	-.0735	138.50	-.223	.0095	3.336				
5900		-1172.7	1575.6	220.0	220.0	.00	-217.503	.00	158.94	1.207	1.207	1.207	-.0704	96.16	-.103	.0087	3.368				
5950		-1142.6	1504.8	234.9	234.9	.00	-217.503	.00	-393.73	1.317	1.317	1.317	-.0630	76.97	-.004	.0085	3.373				
6000		-1067.4	1432.8	240.7	240.7	.00	-217.503	.00	-407.27	-.582	-.582	-.582	-.0611	64.28	-.017	.0085	3.369				
6050		-942.1	1362.0	232.4	232.4	.00	-217.503	.00	59.87	-.928	-.928	-.928	-.0660	75.66	.071	.0086	3.365				
6100		-826.9	1293.5	221.4	221.4	.00	-217.503	.00	-78.86	-.231	-.231	-.231	-.0686	78.32	.146	.0092	3.348				
6150		-737.4	1249.4	203.7	203.7	.00	-217.503	.00	-311.64	-.991	-.991	-.991	-.0713	46.42	.125	.0101	3.322				
6200		-624.3	1207.0	185.4	185.4	.00	-217.503	.00	-41.92	-1.541	-1.541	-1.541	-.0783	66.73	.170	.0108	3.296				
6250		-510.8	1167.3	162.6	162.6	.00	-217.503	.00	30.22	-1.029	-1.029	-1.029	-.0849	50.21	.181	.0117	3.271				
6300		-418.6	1130.0	141.8	141.8	.00	-217.503	.00	-131.07	-.823	-.823	-.823	-.0893	65.92	.171	.0126	3.244				
6350		-331.5	1095.6	119.0	119.0	.00	-217.503	.00	-92.70	-.993	-.993	-.993	-.0939	58.14	.115	.0134	3.225				
6400		-254.3	1064.5	95.9	95.9	.00	-217.503	.00	23.96	-.629	-.629	-.629	-.0983	66.33	.093	.0139	3.213				
6450		-204.2	1041.5	77.2	77.2	.00	-217.503	.00	-49.52	-.174	-.174	-.174	-.1002	49.77	.072	.0144	3.206				
6500		-172.6	1022.4	66.5	66.5	.00	-217.503	.00	-92.55	-.113	-.113	-.113	-.1009	66.28	.016	.0146	3.201				
6550		-147.4	1004.6	57.9	57.9	.00	-217.503	.00	-56.61	.009	.009	.009	-.1013	67.68	.002	.0147	3.201				
6600		-130.2	987.8	52.0	52.0	.00	-217.503	.00	-70.49	.199	.199	.199	-.1008	67.89	-.011	.0147	3.204				
6650		-119.7	971.7	48.6	48.6	.00	-217.503	.00	-97.66	.244	.244	.244	-.0997	66.80	-.024	.0147	3.207				
6700		-111.2	956.0	46.0	46.0	.00	-217.503	.00	-90.74	.226	.226	.226	-.0986	67.56	-.029	.0146	3.210				
6750		-103.1	940.7	43.3	43.3	.00	-217.503	.00	-85.59	.242	.242	.242	-.0975	66.27	-.026	.0145	3.214				
6800		-96.4	927.5	40.7	40.7	.00	-217.503	.00	-95.27	.204	.204	.204	-.0964	57.51	-.018	.0144	3.217				
6850		-89.4	915.3	38.3	38.3	.00	-217.503	.00	-87.90	.145	.145	.145	-.0956	64.25	-.017	.0143	3.218				
6900		-80.5	903.5	35.1	35.1	.00	-217.503	.00	-88.09	.113	.113	.113	-.0950	60.43	-.006	.0143	3.219				
6950		-70.3	892.3	31.1	31.1	.00	-217.503	.00	-87.43	.052	.052	.052	-.0946	58.28	-.003	.0143	3.219				
7000		-59.7	883.9	26.3	26.3	.00	-217.503	.00	-80.07	-.018	-.018	-.018	-.0946	48.61	.012	.0144	3.218				
7050		-49.1	877.0	21.9	21.9	.00	-217.503	.00	-69.73	-.051	-.051	-.051	-.0948	56.02	.011	.0144	3.217				
7100		-38.1	870.7	17.2	17.2	.00	-217.503	.00	-73.44	-.057	-.057	-.057	-.0951	52.11	.017	.0146	3.214				
7150		-27.3	865.3	12.4	12.4	.00	-217.503	.00	-70.43	-.093	-.093	-.093	-.0955	50.40	.012	.0147	3.211				
7200		-17.0	860.9	8.1	8.1	.00	-217.503	.00	-66.35	-.073	-.073	-.073	-.0960	58.20	.008	.0147	3.209				
7250		-50.0	857.6	53.6	53.6	.00	-217.503	.00	908.24	.001	.001	.001	-.0954	-421.17	.101	.0141	3.208				
7300		-53.7	856.0	26.1	26.1	.00	-217.503	.00	904.91	-.541	-.541	-.541	-.0938	-791.33	.459	.0146	3.213				
7350		-50.9	854.9	69.1	69.1	.00	-217.503	.00	1485.65	-1.019	-1.019	-1.019	-.0950	-952.66	.436	.0142	3.219				
7400		-47.1	854.0	20.1	20.1	.00	-217.503	.00	1015.68	-.507	-.507	-.507	-.0950	-656.05	.625	.0143	3.218				
7450		-42.4	853.3	73.2	73.2	.00	-217.503	.00	1240.65	-.991	-.991	-.991	-.0947	-957.54	.570	.0146	3.211				
7500		-28.6	853.1	25.6	25.6	.00	-217.503	.00	953.42	-1.235	-1.235	-1.235	-.0968	-577.02	.610	.0146	3.205				
7550		-15.4	853.7	80.7	80.7	.00	-217.503	.00	1273.44	-1.178	-1.178	-1.178	-.0989	-903.42	.647	.0150	3.203				
7600		-20.0	854.3	28.3	28.3	.00	-217.503	.00	976.41	-1.184	-1.184	-1.184	-.1010	-642.71	.634	.0153	3.195				
7650		-16.5	854.9	80.3	80.3	.00	-217.503	.00	1250.24	-1.243	-1.243	-1.243	-.1030	-892.27	.680	.0157	3.184				
7700		-14.5	855.7	29.1	29.1	.00	-217.503	.00	936.93	-1.483	-1.483	-1.483	-.1059	-661.15	.672	.0161	3.174				
7750		-9.3	856.7	81.8	81.8	.00	-217.503	.00	1308.34	-1.475	-1.475	-1.475	-.1095	-886.01	.681	.0165	3.163				
7800		-10.3	857.7	30.2	30.2	.00	-217.503	.00	1036.70	-1.288	-1.288	-1.288	-.1126	-692.04	.659	.0170	3.151				
7850		-2.2	858.9	82.8	82.8	.00	-217.503	.00	1246.69	-1.302	-1.302	-1.302	-.1149	-908.61	.690	.0175	3.139				
7900		67.1	860.5	51.5	51.5	.00	-217.503	.00	-1248.97	.017	.017	.017	-.1180	956.22	-.229	.0181	3.130				
7950		70.4	862.5	103.3	103.3	.00	-217.503	.00	-798.42	-.116	-.116	-.116	-.1211	537.83	-.437	.0187	3.123				
8010		65.8	864.5	102.5	102.5	.00	-217.503	.00	-673.86	.159	.159	.159	-.1249	473.71	-.336	.0191	3.109				

SEC	T	FS1	FGW11	FGW12	FGW13	FAX11	FAX12	FAX13	SLD2	IN/SEC	SID	S1	FFBUI	FFBL1
LB	LB	LB	LB	LB	LB	LB	LB	LB	IN/SEC	IN/SEC	IN/SEC	IN	LB	LB
.5500	-27810.	-132.	-13244.	131.	-13244.	-749.	468.	-12952.	-119.7	-10.723	10.0044	10.0044	688.1	3613.5
.5550	-25496.	-113.	-11322.	115.	-11322.	-799.	415.	-11690.	-499.4	-11.900	9.9485	9.9485	631.0	3274.3
.5600	-21464.	-99.	-9934.	104.	-9934.	-588.	375.	-9968.	-432.2	-13.851	9.8838	9.8838	541.6	2779.1
.5650	-18080.	-88.	-8750.	94.	-8750.	-276.	339.	-8541.	-273.4	-15.125	9.8111	9.8111	450.6	2283.2
.5700	-15871.	-73.	-7332.	80.	-7332.	-444.	290.	-7468.	-211.6	-15.876	9.7335	9.7335	401.9	2008.7
.5750	-13677.	-63.	-6263.	70.	-6263.	-324.	253.	-6442.	-330.9	-17.083	9.6514	9.6514	352.4	1736.5
.5800	-11397.	-57.	-5679.	64.	-5679.	-101.	235.	-5547.	-125.4	-17.916	9.5634	9.5634	293.9	1426.5
.5850	-10400.	-50.	-5020.	57.	-5020.	-164.	212.	-5064.	-150.9	-18.255	9.4732	9.4732	268.9	1284.9
.5900	-9803.	-45.	-4520.	52.	-4520.	-224.	195.	-4752.	-162.2	-18.843	9.3806	9.3806	260.2	1223.3
.5950	-8961.	-44.	-4439.	51.	-4439.	-81.	195.	-4462.	-91.9	-19.486	9.2846	9.2846	240.4	1111.7
.6000	-8748.	-45.	-4494.	52.	-4494.	-67.	202.	-4436.	83.8	-19.454	9.1870	9.1870	236.9	1077.6
.6050	-9269.	-46.	-4562.	53.	-4562.	-185.	209.	-4649.	103.7	-18.991	9.0909	9.0909	257.3	1150.5
.6100	-9710.	-48.	-4831.	56.	-4831.	-176.	225.	-4875.	80.9	-18.598	8.9970	8.9970	274.0	1205.5
.6150	-10251.	-53.	-5253.	61.	-5253.	-141.	248.	-5184.	148.3	-18.157	8.9049	8.9049	290.8	1258.8
.6200	-11127.	-57.	-5659.	66.	-5659.	-236.	270.	-5607.	254.6	-17.178	8.8164	8.8164	321.9	1372.4
.6250	-12077.	-61.	-6065.	71.	-6065.	-286.	292.	-6040.	221.5	-16.093	8.7333	8.7333	353.6	1485.6
.6300	-12781.	-65.	-6516.	76.	-6516.	-288.	317.	-6416.	246.7	-15.019	8.6555	8.6555	376.1	1560.0
.6350	-13468.	-69.	-6880.	79.	-6880.	-323.	338.	-6752.	300.4	-13.695	8.5836	8.5836	397.7	1635.9
.6400	-14076.	-71.	-7103.	81.	-7103.	-376.	354.	-7010.	266.2	-12.313	8.5187	8.5187	417.5	1704.6
.6450	-14444.	-72.	-7245.	82.	-7245.	-374.	366.	-7159.	180.9	-11.275	8.4599	8.4599	427.9	1735.0
.6500	-14597.	-73.	-7324.	82.	-7324.	-377.	375.	-7223.	150.7	-10.518	8.4055	8.4055	432.8	1743.7
.6550	-14673.	-73.	-7325.	81.	-7325.	-391.	379.	-7243.	120.3	-9.840	8.3547	8.3547	435.9	1746.0
.6600	-14648.	-73.	-7282.	79.	-7282.	-390.	381.	-7214.	69.6	-9.380	8.3068	8.3068	435.6	1734.9
.6650	-14532.	-72.	-7226.	77.	-7226.	-383.	381.	-7157.	50.0	-9.097	8.2606	8.2606	432.8	1714.8
.6700	-14391.	-72.	-7161.	75.	-7161.	-383.	382.	-7094.	51.9	-8.846	8.2158	8.2158	430.1	1695.0
.6750	-14252.	-71.	-7093.	73.	-7093.	-382.	382.	-7032.	50.5	-8.591	8.1722	8.1722	427.5	1676.2
.6800	-14128.	-70.	-7036.	71.	-7036.	-378.	383.	-6980.	47.8	-8.369	8.1299	8.1299	425.2	1658.7
.6850	-14020.	-70.	-7000.	69.	-7000.	-381.	385.	-6941.	64.6	-8.117	8.0886	8.0886	424.2	1646.8
.6900	-13949.	-70.	-6985.	67.	-6985.	-382.	387.	-6923.	86.2	-7.749	8.0489	8.0489	424.2	1639.3
.6950	-13911.	-70.	-6988.	65.	-6988.	-385.	390.	-6921.	109.0	-7.279	8.0113	8.0113	425.2	1635.8
.7000	-13926.	-70.	-7001.	63.	-7001.	-389.	394.	-6938.	120.6	-6.736	7.9763	7.9763	427.4	1637.4
.7050	-13964.	-70.	-7032.	61.	-7032.	-399.	399.	-6966.	134.7	-6.140	7.9441	7.9441	430.8	1644.0
.7100	-14022.	-71.	-7081.	59.	-7081.	-403.	405.	-7006.	156.5	-5.430	7.9152	7.9152	434.3	1652.0
.7150	-14092.	-71.	-7133.	58.	-7133.	-409.	411.	-7049.	177.8	-4.611	7.8900	7.8900	438.1	1661.1
.7200	-14170.	-72.	-7174.	56.	-7174.	-419.	417.	-7085.	177.8	-3.690	7.8692	7.8692	441.6	1670.3
.7250	-13392.	-72.	-7195.	53.	-7195.	-175.	421.	-7042.	1369.4	-2.653	7.8542	7.8542	447.1	1687.8
.7300	-13447.	-71.	-7094.	50.	-7094.	-43.	418.	-7111.	1364.5	-1.807	7.8464	7.8464	442.8	1668.6
.7350	-13296.	-70.	-6988.	47.	-6988.	-99.	414.	-7062.	1697.9	-1.769	7.8413	7.8413	451.1	1652.7
.7400	-13536.	-70.	-7013.	45.	-7013.	-102.	419.	-7078.	1219.9	-1.541	7.8372	7.8372	425.9	1664.0
.7450	-13395.	-71.	-7146.	43.	-7146.	-33.	430.	-7123.	1705.2	-1.385	7.8340	7.8340	446.5	1645.2
.7500	-13789.	-72.	-7246.	41.	-7246.	-104.	439.	-7195.	1288.2	-1.606	7.8331	7.8331	429.3	1662.8
.7550	-14067.	-73.	-7300.	39.	-7300.	-71.	445.	-7319.	1492.7	-2.22	7.8358	7.8358	295.8	1529.2
.7600	-14500.	-74.	-7436.	37.	-7436.	-130.	456.	-7442.	1139.5	-3.344	7.8387	7.8387	148.2	1381.7
.7650	-14655.	-76.	-7646.	35.	-7646.	-90.	475.	-7607.	1545.5	-2.259	7.8416	7.8416	6.3	1239.7
.7700	-15258.	-79.	-7853.	34.	-7853.	-150.	494.	-7802.	1180.1	-0.056	7.8452	7.8452	-175.0	1058.4
.7750	-15610.	-80.	-8048.	33.	-8048.	-153.	511.	-8019.	1495.9	.056	7.8497	7.8497	-400.3	833.1
.7800	-16179.	-83.	-8277.	32.	-8277.	-212.	531.	-8222.	1215.0	.141	7.8545	7.8545	-529.8	593.6
.7850	-16431.	-85.	-8509.	31.	-8509.	-177.	550.	-8417.	1545.6	.425	7.8603	7.8603	-539.6	303.9
.7900	-18038.	-87.	-8682.	30.	-8682.	-847.	567.	-8467.	-1263.3	2.449	7.8677	7.8677	-531.7	-66.2
.7950	-18409.	-88.	-8806.	29.	-8806.	-830.	582.	-8680.	-922.9	2.382	7.8769	7.8769	-549.2	-525.7
.8010	-18861.	-91.	-9078.	28.	-9078.	-887.	606.	-8930.	-769.1	2.160	7.8861	7.8861	-567.6	-988.8

RUN NO.		PAGE NO.		39		70		PAGE NO.		39		70		PAGE NO.		39		70		PAGE NO.		39		70	
SEC	LB	FGW21	LB	FGW22	LB	FGW23	LB	FAX21	LB	FAX22	LB	FAX23	LB	S2DD	IN/SEC2	S2D	IN/SEC	S2	IN	FFBU2	LB	FFBL2	LB		
.5500	884.	-2.	6.	-162.	-1015.	-550.	-550.	-85.	214.0	-24.837	3.0249	.0	.0												
.5550	4111.	-2.	6.	-162.	-244.	-677.	-677.	513.	783.6	-21.373	2.9070	.0	.0												
.5600	4281.	-2.	6.	-162.	891.	-274.	-274.	691.	696.4	-18.038	2.8073	.0	.0												
.5650	3728.	-2.	6.	-162.	1548.	98.	98.	711.	517.9	-15.022	2.7250	.0	.0												
.5700	2845.	-2.	6.	-162.	1328.	151.	151.	85.	367.7	-12.815	2.6557	.0	.0												
.5750	1713.	-2.	6.	-162.	480.	-90.	-90.	259.	235.0	-11.302	2.5957	.0	.0												
.5800	519.	-2.	6.	-162.	-357.	-358.	-358.	-100.	86.7	-10.482	2.5416	.0	.0												
.5850	-448.	-2.	6.	-162.	-626.	-379.	-379.	-311.	-78.0	-10.455	2.4896	.0	.0												
.5900	-876.	-2.	6.	-162.	-196.	-120.	-120.	-289.	-207.5	-11.192	2.4357	.0	.0												
.5950	-625.	-2.	6.	-162.	586.	207.	207.	-104.	-236.0	-12.347	2.3769	.0	.0												
.6000	122.	-2.	6.	-162.	1163.	343.	343.	96.	-143.0	-13.333	2.3125	.0	.0												
.6050	903.	-2.	6.	-162.	-154.	208.	208.	191.	14.7	-13.656	2.2447	.0	.0												
.6100	1284.	-2.	6.	-162.	608.	-71.	-71.	156.	143.4	-13.225	2.1773	.0	.0												
.6150	1144.	-2.	6.	-162.	-42.	-290.	-290.	47.	177.2	-12.372	2.1132	.0	.0												
.6200	676.	-2.	6.	-162.	-318.	-321.	-321.	-55.	110.3	-11.612	2.0534	.0	.0												
.6250	214.	-2.	6.	-162.	-51.	-169.	-169.	-94.	-6.8	-11.343	1.9962	.0	.0												
.6300	6.	-2.	6.	-162.	512.	57.	57.	-58.	-99.0	-11.632	1.9390	.0	.0												
.6350	172.	-2.	6.	-162.	935.	206.	206.	31.	-10.	-12.176	1.8795	.0	.0												
.6400	526.	-2.	6.	-162.	931.	187.	187.	100.	-30.6	-12.528	1.8176	.0	.0												
.6450	772.	-2.	6.	-162.	551.	24.	24.	90.	53.4	-12.454	1.7549	.0	.0												
.6500	750.	-2.	6.	-162.	101.	-166.	-166.	8.	87.9	-12.068	1.6916	.0	.0												
.6550	552.	-2.	6.	-162.	-104.	-247.	-247.	-70.	65.7	-11.656	1.6343	.0	.0												
.6600	321.	-2.	6.	-162.	43.	-163.	-163.	-83.	9.5	-11.458	1.5766	.0	.0												
.6650	224.	-2.	6.	-162.	405.	15.	15.	-24.	-34.9	-11.529	1.5192	.0	.0												
.6700	312.	-2.	6.	-162.	717.	148.	148.	54.	-38.1	-11.725	1.4611	.0	.0												
.6750	490.	-2.	6.	-162.	773.	144.	144.	90.	-5.4	-11.838	1.4021	.0	.0												
.6800	608.	-2.	6.	-162.	555.	23.	23.	64.	35.4	-11.754	1.3411	.0	.0												
.6850	573.	-2.	6.	-162.	233.	-111.	-111.	6.	54.5	-11.511	1.2849	.0	.0												
.6900	412.	-2.	6.	-162.	38.	-161.	-161.	-38.	41.1	-11.254	1.2280	.0	.0												
.6950	243.	-2.	6.	-162.	102.	-105.	-105.	-41.	7.3	-1.124	1.1721	.0	.0												
.7000	183.	-2.	6.	-162.	363.	5.	5.	-4.	-20.6	-11.159	1.1165	.0	.0												
.7050	762.	-2.	6.	-162.	622.	97.	97.	49.	-21.5	-11.272	1.0604	.0	.0												
.7100	402.	-2.	6.	-162.	698.	10.	10.	86.	3.2	-11.319	1.0039	.0	.0												
.7150	464.	-2.	6.	-162.	555.	45.	45.	80.	28.6	-11.229	.9474	.0	.0												
.7200	407.	-2.	6.	-162.	318.	-42.	-42.	39.	36.7	-11.051	.8917	.0	.0												
.7250	280.	-2.	6.	-16.	137.	-92.	-92.	-5.	25.2	-10.887	.8369	.0	.0												
.7300	174.	-2.	6.	-162.	157.	-76.	-76.	-20.	4.7	-10.813	.7827	.0	.0												
.7350	153.	-2.	6.	-162.	323.	-3.	-3.	7.	-6.5	-10.825	.7286	.0	.0												
.7400	212.	-2.	6.	-162.	507.	74.	74.	53.	-3.0	-10.856	.6744	.0	.0												
.7450	288.	-2.	6.	-162.	579.	101.	101.	81.	11.0	-10.839	.6201	.0	.0												
.7500	320.	-2.	6.	-162.	506.	63.	63.	69.	22.9	-10.752	.5661	.0	.0												
.7550	285.	-2.	6.	-162.	341.	-5.	-5.	30.	25.1	-10.626	.5127	.0	.0												
.7600	218.	-2.	6.	-162.	211.	-52.	-52.	-5.	18.1	-10.511	.4599	.0	.0												
.7650	166.	-2.	6.	-162.	197.	-41.	-41.	-11.	10.9	-10.446	.4075	.0	.0												
.7700	259.	-2.	6.	-162.	304.	0.	0.	23.	25.2	-10.373	.3554	.0	.0												
.7750	390.	-2.	6.	-162.	443.	44.	44.	65.	43.9	-10.154	.3039	.0	.0												
.7800	431.	-2.	6.	-162.	531.	70.	70.	80.	47.2	-9.964	.2535	.0	.0												
.7850	420.	-2.	6.	-162.	496.	59.	59.	71.	49.0	-9.729	.2043	.0	.0												
.7900	389.	-2.	6.	-162.	420.	9.	9.	44.	47.0	-9.492	.1563	.0	.0												
.7950	358.	-2.	6.	-162.	327.	-28.	-28.	23.	45.2	-9.254	.1094	.0	.0												
.8010	-1454.	-2.	6.	-162.	289.	164.	164.	-257.	-295.6	-9.700	.0537	.0	.0												

SEC	LB/IN2	PA3	PHS3	OMW3D	OMW3	QG31DD	QG31D	QG31	QG32DD	QG32D	QG32	VW3
		LB/IN2	LB/IN2	RAD/SEC2	RAD/SEC	IN/SEC2	IN/SEC	IN	IN/SEC2	IN/SEC	IN	IN
.5500	-457.7	983.4	2028.2	.00	-186.209	-1403.3	1.402	.0078	-250.37	-.689	.0221	4.482
.5550	-286.2	969.9	3259.9	.00	-186.209	-738.16	-4.502	-.0013	-35.58	-1.575	.0161	4.539
.5600	-201.3	953.4	406.8	.00	-186.209	471.78	-5.324	-.0285	44.42	-1.672	.0078	4.634
.5650	-178.5	938.1	465.8	.00	-186.209	1332.76	-4.425	-.0447	88.90	-1.442	.0001	4.735
.5700	-173.3	922.6	541.5	.00	-186.209	914.69	5.719	-.0305	305.33	-.351	-.0046	4.820
.5750	-142.9	908.6	599.8	.00	-186.209	-217.09	7.563	.0031	156.39	.976	-.0028	4.903
.5800	-110.5	897.5	572.5	.00	-186.209	-1129.48	3.926	.0357	-180.83	.885	.0026	5.000
.5850	-87.7	889.0	569.4	.00	-186.209	-1174.55	-2.246	.0100	-244.43	-.348	.0041	5.113
.5900	-72.9	881.3	543.3	.00	-186.209	-386.03	-6.395	.0168	17.30	-.988	.0002	5.237
.5950	-67.1	873.9	5345.0	.00	-186.209	607.51	-5.762	-.0157	225.10	-.274	-.0034	5.363
.6000	-66.1	863.7	5147.7	.00	-186.209	1088.14	-1.203	-.0342	114.40	.701	-.0021	5.480
.6050	-70.2	859.4	4996.8	.00	-186.209	765.43	3.742	-.0271	-132.28	.633	.0018	5.583
.6100	-77.2	851.8	4920.7	.00	-186.209	-58.75	5.593	-.0020	-175.78	-.263	.0028	5.666
.6150	-85.6	843.9	4917.0	.00	-186.209	-760.04	3.366	.0218	17.81	-.709	-.0001	5.734
.6200	-84.6	835.8	4951.5	.00	-186.209	-861.06	-.980	.0280	167.53	-.165	-.0026	5.795
.6250	-88.4	827.6	4976.5	.00	-186.209	-350.82	-4.202	.0140	81.19	.549	-.0015	5.854
.6300	-83.1	819.7	4956.6	.00	-186.209	354.00	-4.161	-.0084	-102.87	.476	.0015	5.911
.6350	-77.5	812.0	4886.6	.00	-186.209	742.38	-1.208	-.0227	-133.50	-.209	.0023	5.961
.6400	-74.4	804.5	4788.0	.00	-186.209	573.48	2.306	-.0196	12.06	-.551	.0000	5.999
.6450	-74.9	797.1	4694.1	.00	-186.209	18.91	3.866	-.0030	124.72	-.149	-.0019	6.025
.6500	-78.1	789.7	4629.3	.00	-186.209	-496.10	2.564	.0142	63.06	.389	-.0012	6.042
.6550	-81.4	782.1	4556.6	.00	-186.209	-614.45	-.417	.0198	-70.98	.355	.0009	6.051
.6600	-82.9	775.1	4576.9	.00	-186.209	-291.25	-2.827	.0110	-94.82	-.127	.0016	6.053
.6650	-31.8	769.4	4546.6	.00	-186.209	205.04	-3.307	-.0047	7.34	-.374	.0001	6.049
.6700	-73.7	763.7	4497.2	.00	-186.209	512.16	-1.105	-.0157	85.94	-.098	-.0013	6.037
.6750	-78.5	758.1	4435.8	.00	-186.209	433.30	1.421	-.0147	41.00	.267	-.0007	6.015
.6800	-79.2	752.5	4373.8	.00	-186.209	59.91	2.724	-.0036	-52.25	.227	.0007	5.984
.6850	-81.5	746.9	4342.4	.00	-186.209	-319.89	2.009	.0144	-63.90	-.113	.0010	5.942
.6900	-84.6	741.3	4321.0	.00	-186.209	-441.24	-.034	.0144	12.19	-.259	-.0001	5.893
.6950	-85.9	735.7	4297.8	.00	-186.209	-245.53	-1.863	.0091	63.76	-.036	-.0009	5.839
.7000	-85.8	730.1	4259.1	.00	-186.209	101.90	-2.232	-.0019	24.40	.217	-.0004	5.781
.7050	-85.5	724.6	4203.5	.00	-186.209	346.80	-1.022	-.0105	-43.94	.156	.0007	5.717
.7100	-86.1	719.2	4140.2	.00	-186.209	329.53	.785	-.0111	-47.30	-.109	.0008	5.644
.7150	-88.1	713.8	4081.6	.00	-186.209	86.12	1.885	-.0039	12.35	-.208	-.0001	5.562
.7200	-90.9	708.4	4034.6	.00	-186.209	-194.71	1.582	.0054	50.11	-.027	-.0008	5.472
.7250	-93.8	703.0	3998.1	.00	-186.209	-315.40	.211	.0101	19.24	.170	-.0004	5.378
.7300	-96.1	697.6	3964.7	.00	-186.209	-207.12	-1.184	.0074	-32.27	.127	.0005	5.279
.7350	-97.3	697.3	3925.8	.00	-186.209	34.88	-1.636	-.0001	-35.10	-.070	.0006	5.177
.7400	-97.9	687.0	3876.8	.00	-186.209	231.18	-.917	-.0069	7.73	-.148	.0000	5.068
.7450	-99.0	681.9	3820.8	.00	-186.209	250.51	.370	-.0083	34.68	-.026	-.0005	4.953
.7500	-101.2	677.8	3766.1	.00	-186.209	95.13	1.286	-.0038	12.65	.107	-.0002	4.830
.7550	-102.7	673.7	3715.3	.00	-186.209	-306.38	1.070	.0028	193.21	.260	.0004	4.703
.7600	-62.9	670.2	3405.8	.00	-186.209	-767.91	-1.792	.0020	328.06	1.827	.0053	4.588
.7650	-17.0	666.8	2656.7	.00	-186.209	-573.80	-5.379	-.0164	-153.32	2.326	.0168	4.508
.7700	-2.6	666.5	1720.4	.00	-186.209	96.59	-6.611	-.0478	-461.96	.485	.0245	4.456
.7750	1.1	665.8	889.7	.00	-186.209	676.68	-4.452	-.0767	-120.03	-1.232	.0216	4.410
.7800	3.9	665.3	324.4	.00	-186.209	732.00	-.590	-.0895	385.66	-.464	.0165	4.359
.7850	10.0	665.0	27.0	.00	-186.209	268.03	2.155	-.0846	354.02	1.675	.0196	4.307
.7900	24.0	665.2	-65.2	.00	-186.209	-322.10	2.068	-.0728	-158.06	2.259	.0305	4.261
.7950	16.5	666.1	-177.3	.00	-186.209	-581.51	-.312	-.0679	-454.98	.497	.0380	4.233
.8010	34.2	668.3	-488.3	.00	-186.209	-277.89	-3.126	-.0791	-109.32	-1.576	.0337	4.223

SEC	FGWJ1	FGW32	FGW33	FAX31	FAX32	FAX33	S3DD	S3D	S3	FFBU3	FFBL3
LB	LB	LB	LB	LB	LB	LB	IN/SEC2	IN/SEC	IN	LB	LB
.5500	-43.	-46.	-1294.	920.	349.	-3346.	958.5	-24.840	3.5058	.0	.0
.5550	-34.	-24.	-3378.	581.	288.	-2701.	705.2	-20.586	3.3928	.0	.0
.5600	-19.	-9.	-1854.	109.	199.	-1657.	285.2	-18.157	3.2968	.0	.0
.5650	-2.	-1.	-241.	-183.	100.	-420.	-50.1	-17.704	3.2079	.0	.0
.5700	-1.	0.	-95.	0.	152.	135.	229.3	-17.400	3.1.94	.0	.0
.5750	-1.	0.	-95.	480.	85.	326.	345.8	-15.870	3.0360	.0	.0
.5800	-1.	0.	-95.	887.	-7.	343.	303.7	-14.209	2.9609	.0	.0
.5850	-1.	0.	-95.	915.	-49.	266.	215.9	-12.914	2.8932	.0	.0
.5900	-1.	0.	-95.	574.	-27.	148.	133.2	-12.050	2.8310	.0	.0
.5950	-1.	0.	-95.	159.	33.	7.	52.8	-11.589	2.7721	.0	.0
.6000	-1.	0.	-95.	-15.	74.	-118.	-28.3	-11.535	2.7144	.0	.0
.6050	-1.	0.	-95.	141.	37.	-166.	-92.8	-11.857	2.6561	.0	.0
.6100	-1.	0.	-95.	468.	-75.	-111.	-111.4	-12.397	2.5955	.0	.0
.6150	-1.	0.	-95.	719.	-176.	3.	-73.0	-12.885	2.5322	.0	.0
.6200	-1.	0.	-95.	745.	-174.	86.	.5	-13.079	2.4671	.0	.0
.6250	-1.	0.	-95.	562.	-59.	84.	66.8	-12.904	2.4020	.0	.0
.6300	-1.	0.	-95.	311.	77.	21.	91.5	-12.494	2.3385	.0	.0
.6350	-1.	0.	-95.	158.	124.	-37.	70.1	-12.079	2.2771	.0	.0
.6400	-1.	0.	-95.	194.	57.	-49.	22.0	-11.850	2.2174	.0	.0
.6450	-1.	0.	-95.	384.	-57.	-27.	-22.4	-11.864	2.1582	.0	.0
.6500	-1.	0.	-95.	586.	-125.	1.	-37.6	-12.035	2.0985	.0	.0
.6550	-1.	0.	-95.	648.	-109.	16.	-17.7	-12.191	2.0379	.0	.0
.6600	-1.	0.	-95.	525.	-41.	14.	17.7	-12.195	1.9768	.0	.0
.6650	-1.	0.	-95.	318.	24.	-3.	38.2	-12.053	1.9162	.0	.0
.6700	-1.	0.	-95.	186.	55.	-25.	34.6	-11.866	1.8564	.0	.0
.6750	-1.	0.	-95.	219.	41.	-39.	10.8	-11.754	1.7974	.0	.0
.6800	-1.	0.	-95.	373.	-8.	-30.	-12.6	-11.769	1.7386	.0	.0
.6850	-1.	0.	-95.	522.	-59.	4.	-15.2	-11.856	1.6796	.0	.0
.6900	-1.	0.	-95.	561.	-74.	43.	6.0	-11.890	1.6202	.0	.0
.6950	-1.	0.	-95.	482.	-40.	52.	28.2	-11.807	1.5609	.0	.0
.7000	-1.	0.	-95.	355.	21.	29.	36.2	-11.644	1.5022	.0	.0
.7050	-1.	0.	-95.	270.	64.	-1.	27.8	-11.484	1.4444	.0	.0
.7100	-1.	0.	-95.	276.	55.	-9.	12.1	-11.385	1.3873	.0	.0
.7150	-1.	0.	-95.	361.	7.	11.	.1	-11.368	1.3304	.0	.0
.7200	-1.	0.	-95.	464.	-38.	39.	-2.5	-11.384	1.2735	.0	.0
.7250	-1.	0.	-95.	490.	-48.	56.	5.5	-11.387	1.2166	.0	.0
.7300	-1.	0.	-95.	452.	-17.	53.	17.0	-11.343	1.1598	.0	.0
.7350	-1.	0.	-95.	356.	25.	39.	26.1	-11.244	1.1033	.0	.0
.7400	-1.	0.	-95.	273.	49.	24.	25.4	-11.123	1.0474	.0	.0
.7450	-1.	0.	-95.	255.	44.	16.	16.7	-11.027	.9920	.0	.0
.7500	-1.	0.	-95.	314.	19.	14.	2.8	-10.991	.9370	.0	.0
.7550	-8.	-13.	-758.	418.	130.	-476.	305.7	-10.744	.8822	.0	.0
.7600	-26.	-37.	-2597.	515.	374.	-1916.	720.3	-7.969	.8346	.0	.0
.7650	-39.	-37.	-3867.	410.	475.	-3344.	583.5	-4.664	.8033	.0	.0
.7700	-47.	-31.	-4709.	114.	518.	-4490.	293.7	-2.554	.7859	.0	.0
.7750	-54.	-28.	-5445.	-218.	685.	-5127.	90.4	-1.591	.7758	.0	.0
.7800	-63.	-26.	-6251.	-356.	689.	-5871.	76.0	-1.059	.7690	.0	.0
.7850	-71.	-19.	-7093.	-214.	777.	-6552.	192.5	-1.184	.7655	.0	.0
.7900	-78.	-1.	-7816.	111.	916.	-7170.	328.5	1.459	.7682	.0	.0
.7950	-83.	27.	-8271.	223.	860.	-7799.	446.0	3.603	.7807	.0	.0
.8010	-84.	58.	-8425.	29.	753.	-8145.	258.9	5.761	.8094	.0	.0

RUN NO.		70		PAGE NO.		42		THGT1					
T	SEC	ALPHA	BETA	VAIR	FP1	FP2	FP3	MP1	MP2	MP3	OMGIDD	OMGID	DEG
		DEG	DEG	FT/SEC	LB	LB	LB	IN LB	IN LB	IN LB	RAD/SEC2	RAD/SEC	
.5500	-4.179	-963	150.573	-585.	0.	-8013.	0.	0.	0.	0.	.000	.000	.000
.5550	-4.180	-961	150.122	-582.	0.	-7964.	0.	0.	0.	0.	.000	.000	.000
.5600	-4.175	-959	149.670	-578.	0.	-7923.	0.	0.	0.	0.	.000	.000	.000
.5650	-4.165	-956	149.216	-574.	0.	-7887.	0.	0.	0.	0.	.000	.000	.000
.5700	-4.151	-953	148.761	-570.	0.	-7857.	0.	0.	0.	0.	.000	.000	.000
.5750	-4.134	-948	148.305	-566.	0.	-7831.	0.	0.	0.	0.	.000	.000	.000
.5800	-4.114	-942	147.848	-562.	0.	-7807.	0.	0.	0.	0.	.000	.000	.000
.5850	-4.094	-935	147.389	-557.	0.	-7784.	0.	0.	0.	0.	.000	.000	.000
.5900	-4.074	-927	146.930	-553.	0.	-7761.	0.	0.	0.	0.	.000	.000	.000
.5950	-4.053	-918	146.470	-548.	0.	-7738.	0.	0.	0.	0.	.000	.000	.000
.6000	-4.032	-908	146.009	-544.	0.	-7716.	0.	0.	0.	0.	.000	.000	.000
.6050	-4.010	-898	145.546	-539.	0.	-7693.	0.	0.	0.	0.	.000	.000	.000
.6100	-3.988	-888	145.083	-535.	0.	-7671.	0.	0.	0.	0.	.000	.000	.000
.6150	-3.967	-877	144.619	-530.	0.	-7648.	0.	0.	0.	0.	.000	.000	.000
.6200	-3.945	-865	144.153	-526.	0.	-7625.	0.	0.	0.	0.	.000	.000	.000
.6250	-3.923	-853	143.687	-521.	0.	-7601.	0.	0.	0.	0.	.000	.000	.000
.6300	-3.902	-839	143.220	-517.	0.	-7577.	0.	0.	0.	0.	.000	.000	.000
.6350	-3.881	-825	142.752	-512.	0.	-7553.	0.	0.	0.	0.	.000	.000	.000
.6400	-3.860	-811	142.284	-508.	0.	-7528.	0.	0.	0.	0.	.000	.000	.000
.6450	-3.838	-796	141.815	-503.	0.	-7504.	0.	0.	0.	0.	.000	.000	.000
.6500	-3.815	-782	141.345	-499.	0.	-7481.	0.	0.	0.	0.	.000	.000	.000
.6550	-3.791	-767	140.875	-494.	0.	-7458.	0.	0.	0.	0.	.000	.000	.000
.6600	-3.767	-752	140.404	-490.	0.	-7436.	0.	0.	0.	0.	.000	.000	.000
.6650	-3.742	-736	139.933	-485.	0.	-7415.	0.	0.	0.	0.	.000	.000	.000
.6700	-3.715	-721	139.461	-480.	0.	-7394.	0.	0.	0.	0.	.000	.000	.000
.6750	-3.688	-706	138.989	-475.	0.	-7375.	0.	0.	0.	0.	.000	.000	.000
.6800	-3.660	-691	138.516	-470.	0.	-7356.	0.	0.	0.	0.	.000	.000	.000
.6850	-3.630	-676	138.044	-466.	0.	-7339.	0.	0.	0.	0.	.000	.000	.000
.6900	-3.600	-661	137.570	-461.	0.	-7322.	0.	0.	0.	0.	.000	.000	.000
.6950	-3.568	-647	137.097	-456.	0.	-7305.	0.	0.	0.	0.	.000	.000	.000
.7000	-3.536	-633	136.624	-450.	0.	-7290.	0.	0.	0.	0.	.000	.000	.000
.7050	-3.503	-619	136.150	-445.	0.	-7275.	0.	0.	0.	0.	.000	.000	.000
.7100	-3.469	-606	135.676	-440.	0.	-7260.	0.	0.	0.	0.	.000	.000	.000
.7150	-3.434	-593	135.202	-435.	0.	-7246.	0.	0.	0.	0.	.000	.000	.000
.7200	-3.399	-581	134.727	-430.	0.	-7232.	0.	0.	0.	0.	.000	.000	.000
.7250	-3.362	-570	134.254	-424.	0.	-7220.	0.	0.	0.	0.	.000	.000	.000
.7300	-3.325	-560	133.781	-419.	0.	-7207.	0.	0.	0.	0.	.000	.000	.000
.7350	-3.287	-550	133.308	-413.	0.	-7196.	0.	0.	0.	0.	.000	.000	.000
.7400	-3.248	-541	132.837	-408.	0.	-7185.	0.	0.	0.	0.	.000	.000	.000
.7450	-3.208	-533	132.366	-402.	0.	-7174.	0.	0.	0.	0.	.000	.000	.000
.7500	-3.167	-526	131.896	-396.	0.	-7164.	0.	0.	0.	0.	.000	.000	.000
.7550	-3.126	-520	131.426	-391.	0.	-7154.	0.	0.	0.	0.	.000	.000	.000
.7600	-3.086	-514	130.957	-385.	0.	-7143.	0.	0.	0.	0.	.000	.000	.000
.7650	-3.047	-508	130.488	-380.	0.	-7130.	0.	0.	0.	0.	.000	.000	.000
.7700	-3.011	-504	130.020	-374.	0.	-7115.	0.	0.	0.	0.	.000	.000	.000
.7750	-2.976	-501	129.553	-369.	0.	-7097.	0.	0.	0.	0.	.000	.000	.000
.7800	-2.943	-500	129.086	-364.	0.	-7078.	0.	0.	0.	0.	.000	.000	.000
.7850	-2.911	-499	128.620	-359.	0.	-7058.	0.	0.	0.	0.	.000	.000	.000
.7900	-2.879	-499	128.155	-354.	0.	-7037.	0.	0.	0.	0.	.000	.000	.000
.7950	-2.848	-499	127.690	-349.	0.	-7015.	0.	0.	0.	0.	.000	.000	.000
.8010	-2.812	-501	127.133	-343.	0.	-6988.	0.	0.	0.	0.	.000	.000	.000

RUN NO.		T RUNOUT		SH		VH		PHIKK		ALPHC		FHI		FH2		FH3	
SEC	FT	FT	FT	FT	FT	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG
.5500	81.597	-358	-5.943	84.182	3.873	-104158.	4165.	7051.									
.5550	82.209	-360	-5.981	84.155	3.868	-104441.	4231.	7061.									
.5600	82.978	-362	-6.019	84.130	3.862	-104724.	4284.	7069.									
.5650	83.665	-364	-6.055	84.107	3.856	-105006.	4324.	7077.									
.5700	84.350	-365	-6.091	84.086	3.849	-105286.	4350.	7084.									
.5750	85.032	-366	-6.126	84.065	3.842	-105566.	4363.	7090.									
.5800	85.712	-367	-6.160	84.045	3.835	-105845.	4361.	7095.									
.5850	86.390	-367	-6.193	84.025	3.828	-106124.	4344.	7100.									
.5900	87.066	-367	-6.226	84.005	3.820	-106401.	4312.	7104.									
.5950	87.739	-366	-6.258	83.986	3.812	-106677.	4265.	7108.									
.6000	88.409	-365	-6.289	83.967	3.804	-106952.	4202.	7111.									
.6050	89.078	-364	-6.320	83.947	3.796	-107227.	4125.	7114.									
.6100	89.744	-362	-6.350	83.928	3.788	-107500.	4034.	7117.									
.6150	90.408	-360	-6.380	83.909	3.779	-107773.	3930.	7119.									
.6200	91.069	-358	-6.409	83.890	3.770	-108044.	3811.	7120.									
.6250	91.728	-355	-6.437	83.872	3.761	-108315.	3680.	7121.									
.6300	92.385	-352	-6.464	83.854	3.752	-108525.	3533.	7117.									
.6350	93.039	-349	-6.490	83.837	3.743	-108692.	3372.	7110.									
.6400	93.651	-345	-6.516	83.820	3.733	-108858.	3199.	7102.									
.6450	94.341	-341	-6.541	83.804	3.723	-109024.	3014.	7094.									
.6500	94.988	-337	-6.565	83.789	3.713	-109189.	2818.	7086.									
.6550	95.633	-333	-6.589	83.775	3.703	-109353.	2612.	7077.									
.6600	96.276	-328	-6.611	83.761	3.692	-109518.	2396.	7067.									
.6650	96.916	-323	-6.633	83.749	3.681	-109681.	2172.	7056.									
.6700	97.554	-318	-6.654	83.737	3.670	-109844.	1938.	7046.									
.6750	98.189	-313	-6.674	83.726	3.659	-109955.	1697.	7031.									
.6800	98.822	-308	-6.693	83.716	3.647	-110043.	1448.	7014.									
.6850	99.453	-302	-6.712	83.707	3.635	-110131.	1193.	6997.									
.6900	100.081	-297	-6.729	83.698	3.623	-110218.	934.	6980.									
.6950	100.707	-291	-6.746	83.690	3.611	-110305.	671.	6962.									
.7000	101.331	-286	-6.762	83.683	3.599	-110392.	404.	6943.									
.7050	101.952	-280	-6.777	83.677	3.586	-110479.	136.	6924.									
.7100	102.571	-274	-6.792	83.672	3.574	-110565.	-135.	6905.									
.7150	103.188	-268	-6.805	83.667	3.561	-110651.	-406.	6885.									
.7200	103.802	-262	-6.818	83.663	3.547	-110630.	-676.	6858.									
.7250	104.414	-257	-6.830	83.660	3.534	-110501.	-944.	6824.									
.7300	105.023	-251	-6.841	83.658	3.520	-110372.	-1208.	6790.									
.7350	105.631	-245	-6.852	83.656	3.507	-110244.	-1468.	6755.									
.7400	106.235	-240	-6.861	83.655	3.493	-110116.	-1724.	6721.									
.7450	106.838	-234	-6.870	83.655	3.478	-109989.	-1974.	6686.									
.7500	107.438	-229	-6.878	83.656	3.464	-109862.	-2217.	6650.									
.7550	108.036	-224	-6.885	83.657	3.450	-109736.	-2453.	6615.									
.7600	108.631	-219	-6.891	83.660	3.435	-109610.	-2682.	6579.									
.7650	109.224	-215	-6.896	83.663	3.420	-109485.	-2903.	6543.									
.7700	109.815	-206	-6.905	83.666	3.405	-109360.	-3114.	6506.									
.7750	110.403	-202	-6.909	83.675	3.390	-109236.	-3315.	6470.									
.7800	111.009	-198	-6.911	83.681	3.359	-108988.	-4067.	6397.									
.7850	111.573	-195	-6.914	83.687	3.344	-108866.	-4056.	6360.									
.7900	112.154	-192	-6.915	83.693	3.328	-108744.	-3580.	6324.									
.7950	112.732	-189	-6.916	83.702	3.309	-108598.	-3560.	6280.									
.8010	113.424																

RUN NO.		PAGE NO.				44	
T	QBD1	QBD2	QBD3	QBD4	QBD5	QBD6	
SEC	IN/SEC	IN/SEC	IN/SEC	IN/SEC	IN/SEC	IN/SEC	
.5500	627.08	2.614	4.603	3.1538	1.09	.0058	
.5550	639.13	5.794	4.396	3.0350	1.82	.0025	
.5600	643.56	9.014	1.158	2.8742	5.73	.0008	
.5650	637.38	12.213	3.889	2.6778	9.69	.0039	
.5700	607.44	15.338	3.589	2.74529	11.88	.0068	
.5750	562.44	18.272	3.255	2.2065	13.87	.0094	
.5800	504.84	20.946	2.883	1.9457	15.95	.0117	
.5850	441.17	23.316	2.479	1.6777	17.40	.0136	
.5900	370.14	25.350	2.050	1.4098	18.47	.0160	
.5950	290.34	27.007	1.597	1.1491	19.42	.0165	
.6000	205.84	28.251	1.123	1.021	19.90	.0051	
.6050	119.19	29.067	.638	.6749	19.76	.0048	
.6100	29.81	29.443	.146	.4731	19.24	.0160	
.6150	-60.46	29.369	.5185	.3013	18.30	.0151	
.6200	-148.59	28.847	.6642	.326	16.78	.0136	
.6250	-233.49	27.893	.8062	.0621	14.76	.0118	
.6300	-314.59	26.523	.87.74	.0005	12.36	.0096	
.6350	-389.37	24.763	1.0708	.0236	9.52	.0071	
.6400	-456.13	22.649	1.1895	.0072	6.25	.0044	
.6450	-514.58	20.221	1.2967	.0019	2.76	.0015	
.6500	-564.12	17.523	1.3912	.0077	.85	.0015	
.6550	-603.99	14.601	1.4716	.0021	.45	.0044	
.6600	-634.05	11.504	1.5369	.0011	.08	.0038	
.6650	-654.27	8.282	1.5864	.0011	.86	.0122	
.6700	-664.51	4.983	1.6196	.0011	.86	.0141	
.6750	-665.00	1.657	1.6362	.0011	.86	.0141	
.6800	-655.85	-1.647	1.6262	.0011	.86	.0141	
.6850	-637.36	-4.882	1.6199	.0011	.86	.0141	
.6900	-609.91	-8.002	1.5876	.0011	.86	.0141	
.6950	-573.97	-10.963	1.5471	.0011	.86	.0141	
.7000	-530.12	-13.725	1.4783	.0011	.86	.0141	
.7050	-479.16	-16.250	1.4033	.0011	.86	.0141	
.7100	-421.94	-18.504	1.3163	.0011	.86	.0141	
.7150	-359.24	-20.457	1.2187	.0011	.86	.0141	
.7200	-292.28	-22.086	1.1122	.0011	.86	.0141	
.7250	-222.03	-23.372	.9984	.0011	.86	.0141	
.7300	-148.18	-24.298	.8791	.0011	.86	.0141	
.7350	-73.01	-24.850	.88.92	.0011	.86	.0141	
.7400	.99	-25.029	.6312	.0011	.86	.0141	
.7450	73.00	-24.842	.5064	.0011	.86	.0141	
.7500	143.35	-24.300	.3834	.0011	.86	.0141	
.7550	201.94	-23.419	.2640	.0011	.86	.0141	
.7600	242.99	-22.305	.1496	.0011	.86	.0141	
.7650	286.07	-20.981	.0413	.0011	.86	.0141	
.7700	329.55	-19.438	.0599	.0011	.86	.0141	
.7750	368.97	-17.687	.1528	.0011	.86	.0141	
.7800	401.28	-15.756	.2364	.0011	.86	.0141	
.7850	426.31	-13.681	.3101	.0011	.86	.0141	
.7900	447.38	-11.491	.3731	.0011	.86	.0141	
.7950	465.84	-9.204	.4248	.0011	.86	.0141	
.8000	481.40	-6.357	.4716	.0011	.86	.0141	

R/TN NO.		70		PAGE NO.		45		QB6		QBDD7		QB7		QB8		QB9	
SEC	IN/SEC2	QB/SEC	IN/SEC	IN/SEC2	IN/SEC	IN/SEC2	IN/SEC	IN/SEC2	IN/SEC	IN/SEC2	IN/SEC	IN/SEC2	IN/SEC	IN/SEC2	IN/SEC	IN/SEC2	IN/SEC
.5500	2852.09	-8.314	-6.846	91.110	-1.1949	-690.80	9.074	-690.80	9.074	-690.80	9.074	-690.80	9.074	-690.80	9.074	-690.80	9.074
.5550	2581.28	5.286	-5.928	267.02	-1.2272	-816.16	5.264	-816.16	5.264	-816.16	5.264	-816.16	5.264	-816.16	5.264	-816.16	5.264
.5600	2213.43	17.255	-4.200	408.65	-1.2528	-843.78	1.068	-843.78	1.068	-843.78	1.068	-843.78	1.068	-843.78	1.068	-843.78	1.068
.5650	1728.13	21.127	-5.179	509.54	-1.8703	-786.50	-3.042	-786.50	-3.042	-786.50	-3.042	-786.50	-3.042	-786.50	-3.042	-786.50	-3.042
.5700	1084.04	34.158	-3.634	552.95	.825	-1.2709	-6.735	-6.735	-6.735	-6.735	-6.735	-6.735	-6.735	-6.735	-6.735	-6.735	-6.735
.5750	419.53	37.850	-1.819	535.91	3.591	-1.2598	-510.14	-510.14	-510.14	-510.14	-510.14	-510.14	-510.14	-510.14	-510.14	-510.14	-510.14
.5800	-199.11	38.357	.0099	460.82	6.111	-1.2354	-290.03	-290.03	-290.03	-290.03	-290.03	-290.03	-290.03	-290.03	-290.03	-290.03	-290.03
.5850	-795.95	35.815	.1966	355.75	8.175	-1.1995	-50.34	-50.34	-50.34	-50.34	-50.34	-50.34	-50.34	-50.34	-50.34	-50.34	-50.34
.5900	-1302.55	30.474	.3633	220.65	9.643	-1.1547	189.28	189.28	189.28	189.28	189.28	189.28	189.28	189.28	189.28	189.28	189.28
.5950	-1655.61	22.976	.4977	56.78	10.357	-1.1043	410.21	410.21	410.21	410.21	410.21	410.21	410.21	410.21	410.21	410.21	410.21
.6000	-1867.99	14.076	.5908	-112.16	10.228	-1.0525	587.80	587.80	587.80	587.80	587.80	587.80	587.80	587.80	587.80	587.80	587.80
.6050	-1943.39	4.447	.6373	-268.65	9.282	-1.0034	704.68	704.68	704.68	704.68	704.68	704.68	704.68	704.68	704.68	704.68	704.68
.6100	-1857.68	-5.162	.6353	-408.41	7.593	-1.9089	754.62	754.62	754.62	754.62	754.62	754.62	754.62	754.62	754.62	754.62	754.62
.6150	-1626.78	-13.962	.5870	-519.55	5.271	-1.9285	734.20	734.20	734.20	734.20	734.20	734.20	734.20	734.20	734.20	734.20	734.20
.6200	-1290.66	-21.331	.4981	-588.08	2.495	-1.9090	644.85	644.85	644.85	644.85	644.85	644.85	644.85	644.85	644.85	644.85	644.85
.6250	-873.17	-26.808	.3769	-610.70	-5.08	-1.9040	497.43	497.43	497.43	497.43	497.43	497.43	497.43	497.43	497.43	497.43	497.43
.6300	-399.83	-30.044	.2338	-586.89	-3.510	-1.9141	306.89	306.89	306.89	306.89	306.89	306.89	306.89	306.89	306.89	306.89	306.89
.6350	79.40	-30.881	.6350	-515.26	-6.270	-1.9387	90.94	90.94	90.94	90.94	90.94	90.94	90.94	90.94	90.94	90.94	90.94
.6400	524.57	-29.395	-.0712	-401.72	-8.563	-1.9760	-129.08	-129.08	-129.08	-129.08	-129.08	-129.08	-129.08	-129.08	-129.08	-129.08	-129.08
.6450	912.84	-25.815	-.2100	-258.20	-10.209	-1.0232	-33.34	-33.34	-33.34	-33.34	-33.34	-33.34	-33.34	-33.34	-33.34	-33.34	-33.34
.6500	1220.89	-20.483	.3264	-96.98	-11.088	-1.0768	-497.00	-497.00	-497.00	-497.00	-497.00	-497.00	-497.00	-497.00	-497.00	-497.00	-497.00
.6550	1427.72	-13.856	-.4126	69.88	-11.142	-1.1327	-611.76	-611.76	-611.76	-611.76	-611.76	-611.76	-611.76	-611.76	-611.76	-611.76	-611.76
.6600	1525.54	-6.466	-.4636	228.44	-10.376	-1.1869	-665.84	-665.84	-665.84	-665.84	-665.84	-665.84	-665.84	-665.84	-665.84	-665.84	-665.84
.6650	1514.13	1.141	-.4769	365.82	-8.867	-1.2353	-655.49	-655.49	-655.49	-655.49	-655.49	-655.49	-655.49	-655.49	-655.49	-655.49	-655.49
.6700	1397.62	8.426	-.4528	472.11	-6.745	-1.2745	-583.61	-583.61	-583.61	-583.61	-583.61	-583.61	-583.61	-583.61	-583.61	-583.61	-583.61
.6750	1187.94	14.890	-.3940	541.39	-4.183	-1.3020	-459.97	-459.97	-459.97	-459.97	-459.97	-459.97	-459.97	-459.97	-459.97	-459.97	-459.97
.6800	903.39	20.111	-.3059	568.16	-1.378	-1.3159	-296.97	-296.97	-296.97	-296.97	-296.97	-296.97	-296.97	-296.97	-296.97	-296.97	-296.97
.6850	566.74	23.769	-1.1955	550.50	1.448	-1.3157	-110.50	-110.50	-110.50	-110.50	-110.50	-110.50	-110.50	-110.50	-110.50	-110.50	-110.50
.6900	202.79	25.667	-.0712	490.94	4.079	-1.3018	81.10	81.10	81.10	81.10	81.10	81.10	81.10	81.10	81.10	81.10	81.10
.6950	-163.17	25.731	.0581	395.31	6.319	-1.2756	259.49	259.49	259.49	259.49	259.49	259.49	259.49	259.49	259.49	259.49	259.49
.7000	-506.43	24.012	.1832	272.02	8.008	-1.2395	408.15	408.15	408.15	408.15	408.15	408.15	408.15	408.15	408.15	408.15	408.15
.7050	-802.96	20.685	.2955	130.82	9.031	-1.1966	514.03	514.03	514.03	514.03	514.03	514.03	514.03	514.03	514.03	514.03	514.03
.7100	-1033.47	16.036	.3878	-17.15	9.325	-1.1504	568.44	568.44	568.44	568.44	568.44	568.44	568.44	568.44	568.44	568.44	568.44
.7150	-1185.47	10.427	.4543	-160.02	8.888	-1.1046	567.59	567.59	567.59	567.59	567.59	567.59	567.59	567.59	567.59	567.59	567.59
.7200	-1251.58	4.271	.4912	-283.56	7.775	-1.027	510.50	510.50	510.50	510.50	510.50	510.50	510.50	510.50	510.50	510.50	510.50
.7250	-1230.39	-1.994	.4968	-378.67	6.117	-1.0278	404.12	404.12	404.12	404.12	404.12	404.12	404.12	404.12	404.12	404.12	404.12
.7300	-1138.48	-7.968	.4718	-438.21	4.067	-1.0022	260.98	260.98	260.98	260.98	260.98	260.98	260.98	260.98	260.98	260.98	260.98
.7350	-970.33	-13.296	.4182	-463.07	1.809	-.9874	97.54	97.54	97.54	97.54	97.54	97.54	97.54	97.54	97.54	97.54	97.54
.7400	-723.34	-17.582	.3405	-457.52	-4.96	-.9842	67.96	67.96	67.96	67.96	67.96	67.96	67.96	67.96	67.96	67.96	67.96
.7450	-419.62	-20.475	.2448	-421.87	-2.700	-.9922	-220.22	-220.22	-220.22	-220.22	-220.22	-220.22	-220.22	-220.22	-220.22	-220.22	-220.22
.7500	-98.41	-21.789	.1384	-354.3	-4.646	-1.0107	-347.49	-347.49	-347.49	-347.49	-347.49	-347.49	-347.49	-347.49	-347.49	-347.49	-347.49
.7550	202.25	-21.521	.0295	-274.64	-6.196	-1.0380	-449.43	-449.43	-449.43	-449.43	-449.43	-449.43	-449.43	-449.43	-449.43	-449.43	-449.43
.7600	471.56	-19.846	-.0744	-199.90	-7.381	-1.0721	-519.41	-519.41	-519.41	-519.41	-519.41	-519.41	-519.41	-519.41	-519.41	-519.41	-519.41
.7650	720.35	-16.864	-.1667	-104.45	-8.139	-1.1111	-529.07	-529.07	-529.07	-529.07	-529.07	-529.07	-529.07	-529.07	-529.07	-529.07	-529.07
.7700	920.28	-12.748	-.2412	4.19	-8.383	-1.1526	-482.54	-482.54	-482.54	-482.54	-482.54	-482.54	-482.54	-482.54	-482.54	-482.54	-482.54
.7750	1051.94	-7.798	-.2928	111.77	-8.080	-1.1940	-390.56	-390.56	-390.56	-390.56	-390.56	-390.56	-390.56	-390.56	-390.56	-390.56	-390.56
.7800	1110.10	-2.371	-.3184	205.29	-7.270	-1.2326	-264.92	-264.92	-264.92	-264.92	-264.92	-264.92	-264.92	-264.92	-264.92	-264.92	-264.92
.7850	1090.73	3.153	-.3164	280.04	-6.040	-1.2660	-118.66	-118.66	-118.66	-118.66	-118.66	-118.66	-118.66	-118.66	-118.66	-118.66	-118.66
.7900	990.08	8.374	-.2873	335.80	-4.485	-1.2925	35.21	35.21	35.21	35.21	35.21	35.21	35.21	35.21	35.21	35.21	35.21
.7950	821.42	12.912	-.2338	371.30	-2.699	-1.3105	184.15	184.15	184.15	184.15	184.15	184.15	184.15	184.15	184.15	184.15	184.15
.8010	574.34	17.112	-.1430	378.46	-4.419	-1.3199	340.01	340.01	340.01	340.01	340.01	340.01	340.01	340.01	340.01	340.01	340.01